RADIO-PERCEPTION

THE JOURNAL OF THE
BRITISH SOCIETY OF DOWSERS

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JOURNAL OF THE
BRITISH SOCIETY OF DOWSERS

Vol. VIII No. 64 June, 1949

NOTICES

Radiations, by Mr. T. Bedford Franklin, is now on sale by the Society at the price of 8/6. A copy of the late Sir William Bragg's little book, *The Story of Electromagnetism*, will be presented to any member purchasing a copy of *Radiations*.

* * * *

The new edition of *Dowsing*, by Captain W. H. Trinder, is now ready, price 7/6 to members and 10/- to non-members, post free; obtainable from the Assistant Secretary.

* * * *

Mr. J. R. Parkington has kindly presented a copy of *The Journal of the Institution of Electrical Engineers* for December, 1948, to the Society. This number contains two articles of interest to members who study geophysical methods of prospection, namely, "Development and Use of Magnetic Apparatus for Bomb and Mine Location," by A. Butterworth, B.Sc. (Eng.), and "Development of Locators of Small Metallic Bodies buried in the Ground," by B. Ruston, B.Sc. (Eng.).

* * * *

The following periodicals are received in return for *Radio-Perception*: *Revue Internationale de Radiesthésie*, *Radiesthésie pour Tous*, *Bulletin de la Confédération Francaise de la Radiesthésie* (Bordeaux), *Rivista Italiana di Radiestesia*, *Prediction*, *The Electronic Medical Digest*.

* * * *

Contributions for the *Journal*, preferably in typescript, should be sent to the Editor at least five weeks before the first day of March, June, September and December if they are to appear in the respective *Journals* for those months.

* * * *

The Title Page and Contents of Vol. VII have been printed and will be supplied by the Editor on application.

* * * *

The price of new *Journals* to members, in excess of the free number, and of old *Journals*, is 2/- and 1/6 respectively.

Six free copies of the *Journal* will be given, on request, to writers of articles in it, in addition to the usual copy.

The Society's badges can be obtained from the Honorary Secretary for 1/3 post free.

* * * *

Communications for the Editor, and inquiries, should be sent to Colonel A. H. Bell, York House, Portugal Street, London, W.C.2.

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PART ONE

FUNDAMENTAL RAY ANALYSIS

By J. CECIL MABY, B.Sc., A.R.C.S., F.R.A.S., B.S.D.

Introductory

The radiesthetic conception of a beam of rays emerging from any given mass of matter at a specific magnetic orientation—which we may call the *position angle*—is by no means new. French investigators have named such a phenomenon the *fundamental ray*, and although this expression has no commendation beyond common usage, it may be retained for convenience pending a final elucidation of the problem.

Such " beams," in fact, do not seem to be of a sharply defined optical kind, as in the case of, say, a spot-light. They are rather in the nature of fan-shaped zones of radionic energisation that extend radially and unilaterally from the source through a wide angle, gradually fading with horizontal distance. But as the resultant field reaches a fairly sharp peak intensity at the middle of the fanwise zone, one may get the impression of a relatively sharp and narrow " beam of rays "—especially where a rather weak field and/or low detector sensitivity are in question.

Yet this is probably only a sensory symbol for some sort of electro-magnetic field of considerable penetrating power and directional sense, the exact form and nature of which reaches a peak intensity on one side of the object in a radial, vertical plane, as already described, and the time is not yet ripe to attempt a more precise definition. Nevertheless, there can now be little doubt that such f.r. beams (as I propose to abbreviate the common name) actually exist objectively in space around material objects. Otherwise, the data given in this paper could not have been obtained, nor would their occurrence so often have been asserted.

The four so-called " cardinal rays " that are detectable by dowsers and suitable electronic instruments around vertical conductors, both above and below ground, possibly fall into the same category. For these magnetically orientated " radionic " beams create similar radial, vertical zones of maximum response to the dowsing field, that have also eluded explanation, so far, in terms of, say, slow-moving electrons, polarised in some way in the Earth's magnetic field. But it can be shown that such beams increase in intensity when the conductor is in a state of natural or artificial electronic oscillation—as if they were of a Hertzian nature. They may also deviate or flash round into a kind of inverted phase state at certain times or when the magnetic polarity of the local field (vertical component) is reversed, and they are then found to form a NW-SE and NE-SW rectangular cross, centred on the vertical conductor, instead of being NS

and EW. These two inverse states we may term "negative" and "positive" polarity, respectively.

The measurable width of the cardinal rays may appear to agree with the thickness of the vertical conductor creating them; but in the case of the fundamental rays it is hard to say whether this is so, owing to some angular spread of the beam, as already remarked, in addition to the sharp central peak effect; and the zone can never be so sharply defined (physiologically, at least) as to be sure that its width is not greater than the specimen under examination, if the latter is of small dimensions. For there is usually about $\pm$ 2-3 degrees of arc latitude in the best determinations; and listed f.r. position angles represent means of a number of attempted definitions of the central peak reaction.

The median peak of the field may be conveniently labelled "P," to show its primary and penetrating nature (see below), and the sensible margins of the "softer" or "secondary" fan of rays "SS." (*See Figure* 1).

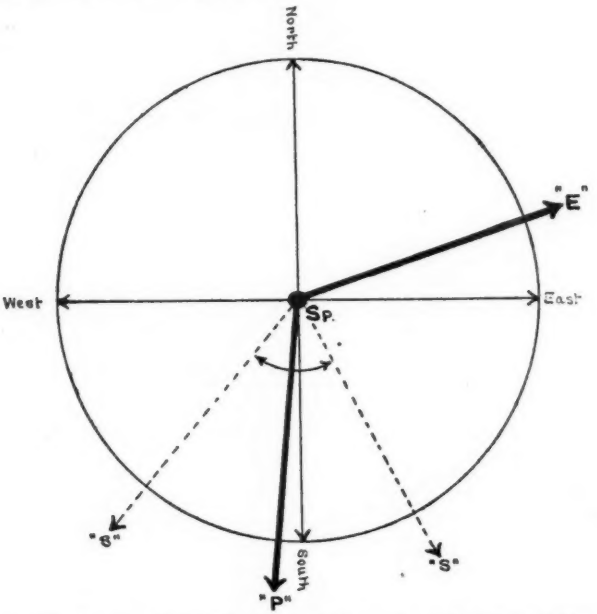

Fig. 1 shows the so-called "E" (electronic) beam at 340° on the stabilised f.r. chart, the "P" and "SS" fan effects for a substance such as phosphorous, and the four magnetically orientated "cardinal rays," N, S, E and W. The specimen (Sp) for analysis is at centre of circle in stabilising magnetic field.

Experimental Technique

To define the mean centres of these zones at all accurately needs a skilful technique, using a rod or pendulum; and it is best to work on a large diameter circle around the objective, using fairly fast initial circumambulations followed by final cautious side-stepping, with tension in one arm or hand only, so as to get within a degree or two of the central peak of the field. Nor should too sensitive a rod and grip be applied, unless the field is very weak; *and no specific f.r. responses can be obtained unless an exactly matching sample of the same material is carried in one hand—only cardinal beams, if present.*

But many details of essential technique cannot be given in this paper, and they are best appreciated by practical demonstration, my chief aim being to describe the phenomenon in a preliminary way, and to give a few general hints and numerical data.

In any case, the whole affair in still difficult in practice and uncertain in theory, and to make a useful proposition of what I am tentatively calling *fundamental ray analysis* will certainly require considerable instrumental and theoretical developments beyond our present attainment. That is why past investigators have mostly failed to obtain consistent values and mutual agreement. Nor, unfortunately, do their results for different elements, compounds or mixtures (e.g., Voillaume's, which I showed at my lecture on the subject on March 16th) tie up in any way with physico-chemical classifications, as one might expect them to do if they possessed a sound physical basis.

Early in the last war, however, Captain W. H. Trinder and I, in an attempt to utilise the supposed fundamental rays for the purpose of pin-pointing unexploded bombs (which we ultimately achieved with some success in another way), discovered that the main trouble was a tendency for the former to move around the compass at different times of day, and it soon became apparent that they made a 360° rotation every twenty-four hours, in some way related, presumably, to the Earth's daily revolution on its axis. (*See Table* 1).

This was no " solar plane " effect, as the latter results in something like an optical shadow away from the Sun in the case of objects such as vertical metal rods, except that such radiesthetic " shadows " (like the cardinal rays) extend indefinitely, with successive antinodes of reaction every 140cm., approximately, along their length. But the various " fundamental rays " may diverge radially in any specific direction, not simply reciprocally to the immediate position of the Sun; and we noticed that magnets near the source of f.r. beams caused deviations from normal at any given time.

TABLE 1.

Diurnal Rotation F.R. Beams when not Stabilised Magnetically, showing Deviations from Mean Stabilised Value.

Element	Unstabilised F.R. Position Angles and Differences from Stabilised Values		
	@ 9 hours	@ 14 hours	@ 20 hours
Carbon	245° (−155°)	325° (−75°)	55° (+15°)
Aluminium ..	290° (−152)	10° (−72°)	95° (+13°)
Calcium	330° (−165°)	60° (−75°)	150° (+15°)
Iron	30° (−160°)	120° (−70°)	195° (+ 5°)
Zinc	52° (−157°)	120° (−89°)	215° (+ 6°)
Bromine	60° (−168°)	160° (−68°)	242° (+14°)
Tin	100° (−161°)	195° (−66°)	280° (+19°)
Barium	117° (−158°)	215° (−60°)	293° (+18°)
Lead	155° (−167°)	255° (−67°)	338° (+16°)
Radium	165° (−171°)	265° (−71°)	352° (+16°)
Mean Angular Deviations from Stable Values	−161°	−71°	+14°

Now, one knew already that magnets and solenoids produced strong axial beams or fans of " dowsing radiation " of opposite rotary sense from the N and S poles ; also that this effect appeared to result simply from some sort of polarisation of whatever scattered " electronic " radiation pre-existed locally. Magnetic fields, therefore, looked like being of value in attempts to stabilise the f.r. beams ; and so, indeed, it transpired.

(NOTE.—Subsequently, Captain Campbell Line, B.S.D., and I found that bar magnets, laid exactly over and parallel to underground streams, likewise stabilise the pulsations of the flow bands, causing the primary reaction band of the flow field to contract to a minimal width from which yield could then be calculated).

Various stabilising devices were tried, and we found that all that was needed in order to prevent the f.r. beams from rotating diurnally was a strong bar magnet, set vertically just over or under the object of analysis ; or else an electric solenoid to contain the selected specimen. But it was also found that *the beams were reciprocated through* 180° *when the magnetic polarity was inverted ;* the values given in *Table* 2 being obtained when the stabilising field was N pole up ; and it is highly significant that two charts for fundamental rays sent to me from the Southern Hemisphere by B.S.D. members very closely agreed with ours as to many elements, if one simply reciprocated all the position

angles. As this was independent work, a pretty confirmation of the objectivity of the phenomenon ,of many of the individual values, and also of the effect of magnetic inversion was thus provided. Indeed, Captain Trinder and I have often got almost co-incident f.r. values for the same materials when working many miles apart, while in other instances our readings were exactly reciprocal.

TABLE 2

Stabilised F.R. Values for a Number of Elements

Element	F.R. Angle	Element	F.R. Angle
Hydrogen ..	2°	Copper	202°
Boron	32°	Zinc	209°
Carbon	40°	Selenium	227°
Nitrogen	46°	Bromine	228°
Oxygen	52°	Molybdenum	245°
Neon	70°	Silver	256°
Sodium	74°	Cadmium ..	258°
Magnesium ..	79°	Tin	261°
Aluminium ..	82°	Antimony ..	264°
Silicon	88°	Iodine	267°
Phosphorus ..	94°	Barium	275°
Sulphur	102°	Tungsten ..	312°
Chlorine	118°	Osmium	314°
Potassium ..	130°	Gold	318°
Calcium	135°	Mercury	320°
Chromium ..	175°	Lead	322°
Manganese ..	182°	Bismuth	328°
Iron	190°	Radium	336°
Cobalt	194°	Thorium	342°
Nickel	197°	Uranium	345°

Relation to Atomic Weight

On taking one at a time, at random, a number of common elements in pure form, and adopting the following technique in order to determine their individual f.r. position angles on a large compass dial of 80cm. radius, marked on the floor of an upstairs room over neutral ground (as previously tested and selected), it was *discovered that the readings were in a clockwise sequence, in order of atomic weights (or numbers) of the elements, and the zero, or starting point of the f.r. scale was magnetic East* for N Hemisphere workers using a stabilising magnet or solenoid with its N pole uppermost. So that the lightest element, hydrogen, fell just south of East, and the heaviest, uranium, not far short of East again, after traversing the circle in a clockwise sense;

but leaving a final gap of 15° of arc for possible heavier elements, as yet unknown.

This highly satisfactory result was repeatedly confirmed by Captain Trinder and myself at several different observing stations where conditions were " neutral " and, as far as possible, magnetically " quiet " and unperturbed, both in and out of doors, assisted (between 1941-49) by several friends and visitors who were sufficiently sensitive and skilful; and great care was taken to avoid any normal clues or suggestions, apart from first explaining to newcomers the precise technique to be adopted. Yet excellent general agreement resulted, within a small margin of experimental error, apart from occasional reciprocal data—a kind of " negative " or inverse response. N.B.—And the disturbing effects of superimposed magnetic fields, the phenomenon of magnetic inversion (reciprocation of f.r. beams) and the four unwanted cardinal rays were also repeatedly confirmed.

Compounds and Mixtures

Having satisfied ourselves of the objective nature and general repeatability of these data and obtained remarkably smooth curves (*see Figure* 2) showing the relationship between atomic weight or number and f.r. position angles on the 360° chart, we went on to determine the f.r. values for various rarer or unknown (sealed up) elements, followed by numerous compounds and mixtures.

Apart from a few failures that were attributable to weak fields (in bad weather), magnetic disturbances, nervousness or fatigue, the new elements fell into line with the main sequence, so that

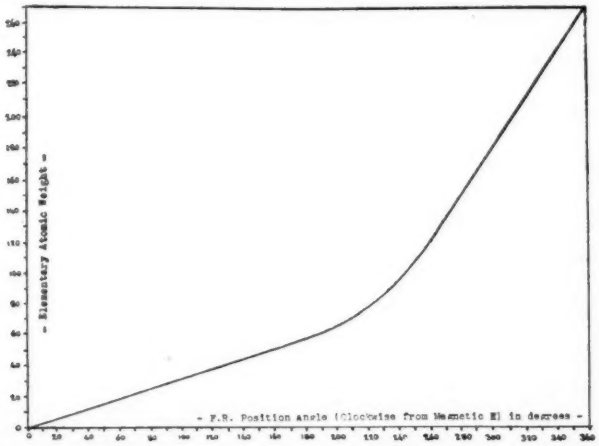

Fig. 2. Relation between F.R. Position Angles and Atomic Weights.

their atomic weights were able to be forecast to within about + 1 % by means of their f.r. values, after reference to the graph shown in figure 2; and the same thing was possible in the case of the molecular weights of various compounds such as copper sulphate, sodium chloride, calcium suphate, calcium phosphate, calcium carbonate; more complex organic ones such as xylol, rubber, bakelite, cellulose, dextrose, starch, &c., and even mixed elements and compounds were eventually tackled successfully.

Thus the sums of the molecular weights of the constituents of four high explosives, for instance, were correctly forecast (without any chemical knowledge on our part) for a well-known physicist, adviser to the Ministry of Supply during the war, from a determination of their individual (mass reaction) f.r. values. So that, with all its practical and theoretical difficulties, the problem began to assume a decidedly scientific aspect in a roughly qualitative sense. And even quantitative results were soon to follow.

After a number of f.r. position angles for *compounds* had been obtained, examination soon showed that a very simple rule governed the relation between such values and the chemical formulae, namely, that *if half the molecular weight of the compound was calculated and the resultant number referred to the vertical (atomic weight) scale of the graph previously plotted for atomic weights of elements against their f.r. position angles, the f.r. value for the compound could then be read off on the horizontal scale.*

This seems to be the general rule for the conversion of molecular weights of compounds to f.r. position angles, and conversely, though I do not pretend to be able to explain the theoretical reason and must simply leave it at that for the present.

Similarly, in the case of *mixtures*, it appears that all one has to do in order to predict f.r. values is to *add up the sum of the atomic or molecular weights of the various constituents, if known, including free or combined water, again divide by two and refer back to the fundamental graph given in figure 2, as in the case of compounds* (see above). And I do not think that minute traces of impurity sensibly affect these results.

So much for the main compounded (? beat) effects that result from the mixed frequencies of some etheric or electronic radiation assumed to be given off more or less continuously by the various constituent elements of any compound or mixture; this principal and over-riding f.r. beam being what is normally picked up by a skilled dowser walking fairly quickly around the object, matched (compounded or admixed) " sample " in hand, and not using too high a sensitivity setting of rod and muscles.

Having marked the mid-point of the principal f.r., however, a number of much weaker auxiliary " beams " can also be detected at different points around the circle by adopting a more sensitive setting. These evidently correspond to the chief constituents present, and, in order to check up on each of the latter, pure

samples of such suspected substances as either common sense or their position angles may suggest are then carried around the circle, using the less sensitive technique again; and if a really strong response then results at the appropriate point, it can be fairly safely assumed that the " sample " matches the element or compound present in the objective compound or mixture under analysis. If no strong response is obtained, then there is no such syntony, and another likely material must be tried instead.

It seems that the different elements in a compound, or else the different compounds in a mixture, can thus be detected with relative certainty; but the use of pure specific samples is essential, as more than one element or compound may possess roughly the same f.r. value. And this remark applies also, I find, to the various " radionic rates " obtained with medical diagnostic sets, *so that a simple dial reading or " rate " is in itself no guarantee of the accuracy of the analysis or diagnosis.* (All serious enquirers please note).

Workers in this field must also be reminded again at this point of the danger of mistaking one or other edge of the " SS " fan for the central " P " effect (which alone counts analytically), or of picking up one of the four cardinal rays when being too sensitive, if electrical oscillations are going on locally; and each apparent beam should be " squeezed down " as far as possible, using a very firm grip on the rod with an appropriate " sample " in hand, before jumping to conclusions.

Detailed Analysis of Mixtures

Detailed attempts were made by the new technique to make a rough chemical analysis of four soil samples and several impure water samples that yielded very promising results which could not possibly be attributed to chance or normal knowledge of constitution.

For example, the soil was first air-dried, pulverised, passed through a fine sieve, thoroughly mixed and oven-dried. Next 100gm. were weighed out and enclosed in a clean bakelite box that was placed immediately below the central stabilising bar magnet. Then the principal f.r. (compounded) beam was found, carrying a 10gm. " sample " of the same material in the detector hand, in a thin glass tube, followed by determination of the chief constituents, as described above for compounds; and the f.r. for each individual constituent was then checked against pure " samples " (in hand) of the suspected compounds.

The approximate percentage amounts of the various main constituents were then determined by the angular fan-spread method described below, using an exciting field of standard strength and a constant detector sensitivity, and then interpreting the resultant fan-spread angles from master curves that were plotted for known amounts of either solid matter or a salt in 100cc. of aqueous solution. (*See Fig. 3.*).

In this way, both the nature and rough amounts of the various constituents were obtained by about one day's work, and were found to agree closely with the amounts determined by (rough) standard mechanical and chemical analysis. (*See Table* 3 for example).

TABLE 3

Example of F.R. Quantitative Analysis of Soil Sample, compared with Rough Standard Analysis

Constituent	Radio Analysis	Standard Analysis
Absorbed Water	13 %	12 %
Sand	62 %	64 %
Clay and Fine Silt	22 %	21 %
Organic Matter	6 %	6 %
Lime	1.5%	2 %
Iron (Oxides)	5 %	4 %
Magnesium	0.5%	1 %
Nitrogen (inc. Ammon.)	1.0%	?
Ammonium (free)	0.7%	a little
Phosphorus (combined)	0.3%	0
Sol. Humus (free)	?	a little
Potash (sol.)	0.5%	?

Mass and Fan Spread or Field Strength

To determine the rough proportions of the main constituents of a given specimen a new technique was developed as follows, based on the work done by Mr. T. B. Franklin, Captain Trinder and myself (among others) on mines and unexploded bombs during the war, in which we found that the angular spread of the fan of dowsing or instrumental reaction to the distant objective was dependent on : (1) *mass of the given object*, to which one was syntonised by means of a specific " sample " ; (2) *distance of same from detector* ; (3) *degree of electrical excitation*, whether natural or artificial ; (4) *conductivity of intervening media* and *radio reception conditions* ; (5) *nature and thickness of intermediate screening materials* ; and (6) *relative sensitivity and " threshold " setting of the detector*, whether physiological or instrumental.

In the case of bombs and other outdoor targets above and below ground, a smooth curve of roughly rectangular hyperbolic form was obtained by plotting a variable mass or distance of the target against angular spread of the directional fan, while the other factors were kept appreciably constant.

From such a curve, therefore, one can predict either approximate distance or mass, other things being equal, by measuring the angular fan spread of the direction-finding (d/f) beam. And it was found that the same principle applied to the SS fan of the fundamental ray beams, for a similar form of curve was obtained when progressively increasing masses of any given material were plotted against the angular SS fan spreads that they produced.

In the field, when working on bombs, &c., distances varied between a few yards and several hundred yards, it being possible under good conditions to detect a 50 kilo bomb from several hundred yards away, and a large dump of explosives at a distance of several miles—a fact that sometimes caused us trouble; but in the laboratory we were working at 4 to 5 feet radial distance—max. 150cm., the specimens used being correspondingly small.

Thereafter, granted equivalent detector sensitivity and electrical energisation (if artificially applied), unknown amounts of material could then be extrapolated from the graph with reference to any particular SS fan spread, as was mentioned above in connection with the soil analysis. (*See Figure* 3).

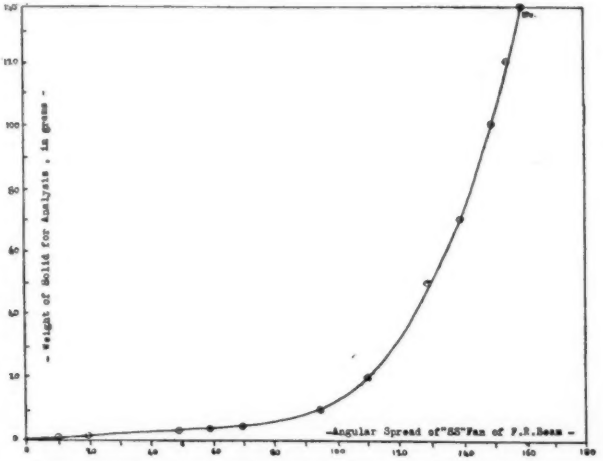

Fig. 3. Relation between Mass of Material and Spread of Beam.

(NOTE.—Bisection of the fan gives the true d/f alignment on the distant objective; but to get a "fix" on such a target one needs to take two or more such directional bearings on it from widely separated stations, and it was found that pick-up became very weak and difficult when the objective was perfectly insulated from the damp ground; also that fanning-out of the beam was

only serious when the object was relatively large, near, and little screened by wet ground or metal casings. Then the fan of reaction might spread almost 90° on either side of the true d/f line, unless one used a very low sensitivity setting of the detector. So that the phenomenon was clearly analagous to pick-up of ordinary radio signals by means of a rotating loop aerial—replaced in this case by the dowser's horizontally outstretched forearms).

Some degree of artificial energisation of bombs, etc. in or on damp ground was achieved simply by sending out a fairly strong (aperiodic) ground wave from an h.t. spark coil. This boosted the returning "Signal" from any such target (as indicated by d/f fan spread) within a limited distance, depending on strengh of the oscillator and condition of intervening ground.

In the case of the f.r. "beams" the same conditions and factors appear to apply, *viz.*, mass, distance, screening, field strength, &c., so that it is all too easy to think that one has got two or even three separate "beams," when there is an appreciable fan spread, as represented by the outer margins and/or central peak reaction. (An effect that can be imitated and photographed by means of cathode rays in an almost evacuated gas-filled tube, when the latter are made to pass between the opposite poles of a strong magnet, though this is probably only an analogy.) And there may, as in wireless direction-finding work, be a weaker residual pick-up in a reciprocal sense to the true direction. Hence, presumably, some of our 90° and 180° displacements, as noted above.

It is not surprising, therefore, that earlier workers, though sure enough of their immediate reactions, made so many errors of definition. In fact, it is a wonder that any useful results at all are possible, and then only as a result of the utmost care and circumspection. *And too great sensitivity or excessive field strength seem to be fatal to accurate diagnosis and definition.* The whole subject also requires much more detailed investigation and (if possible) instrumental development before being generally applied—as our work in the Forces between 1940 and 1943 and subsequent attempts at accurate laboratory analysis by such means have shown.

Under favourable conditions the sensitivity of the f.r. analysis technique appears to be fairly high, though scarcely to be compared, I think, with classical chemical or spectroscopic analysis. Despite the somewhat extravagant claims of many dowsers to be able to detect infinitesimal amounts of materials, rigid scientific tests for the presence or absence of small traces of matter—such as would be readily detectable for certain by standard chemical or spectroscopic methods—indicate that the most skilful dowser's reactions are not yet to be trusted to any equivalent extent.

It is true that roughly qualitative results can be got by a skilled radiesthetist working under ideal conditions and exercising

particular care and discrimination, but the relative amounts and concentrations of any given substance have seldom been estimated by them with any reasonable accuracy.

However, by applying qualitative and quantitative methods of radiesthetic analysis of the kind outlined in this paper (a special development of which has since been used successfully to give a better idea than was formerly obtainable of the constitution of underground water, &c.), it seems to be possible to detect quantities of the following orders of magnitude where the object has a total mass or volume of about 100gm. or 100cc.

1.—*Min.* mass of *solids* detectable—1/10th gm.
2.—*Min.* mass of *solute* detectable—1/10,000th gm.
3.—*Max.* mass of *solids* detectable—300 gm.
4.—*Max.* mass of *solute* detectable—1/100th gm.

Failures with Small Drug Samples

Despite many earlier successes, a recent series of tests on a set of minute medical drug specimens (in an attempt to sort them out into mutually inhibitory pairs on the hypothesis that their f.r. values might, perhaps, prove to be reciprocals for each such opposed pair) failed either to produce consistent readings or to vindicate our radiesthetic hypothesis; but there were many repetitions of approximately the same f.r. values for each given specimen when working "blind," and only 25% of non-repetitive values; and the repetitive values, though far too variable and approximate to be considered useful, could be divided into two sets: *viz.*, 35% of what might be termed "positive" phase values and 40% of "negative" phase ones, in which the f.r. beams were found reciprocated or else turned through a right angle to the "normal" position angles.

The doctor who provided these (to us, unknown) drugs was also good enough to state that he thought a number of our tentatively paired drugs made sense medically, on the basis of our hypothesis; but the experiment was largely a failure, except in so far as it warned one of the dangers of very stormy weather (as at that time) and of trying to work with very minute specimens and "samples" ($\frac{1}{4}$gr.), even when these were shaken up in 5cc. of distilled water. In any case, many of the specimens were not water soluble, unfortunately, and an endeavour to intensify the weak resultant beams by means of strong electronic oscillation only resulted in the intensification of the unwanted cardinal beams—which always seem to be more prominent in the neighbourhood of electric machinery—and so introduced spurious effects, including appreciable fanning-out of the f.r. beams themselves. Yet the psycho-physical state of the dowser was good at the time, and the position in the room of an assistant did not seem to count.

Weak Fields and Artificial Excitation

At times, when there is heavy fog or snow about, also for shorter periods in stormy or thundery weather, both the direction-finding of bombs, &c., and attempted f.r. analysis may become practically impossible owing to severe fading. Many dowsers and weather sensitives also feel low and feeble, or else suffer various aches and pains at such times, thus becoming less efficient radiesthetically. But various electrical instruments we have employed all show that these dull and weak periods are perfectly objective—whether due to actual screening-off of the basic energising rays (as in fog) or else to " jamming " by powerful interfering electric fields thrown out by charged cloud masses at certain critical distances (as in electric storms).

The latter phemomena tend to make precise measurements in dowsing rather dubious, and attempts at artificial excitaton at such times are not always successful ; but energisation can be achieved simply by low-frequency oscillation (direct or inductive) of the objectives when the general geophysical field is rather weak, but otherwise " quiet." Such times, indeed, are most favourable for delicate tests of the present kind, provided one can activate the specimens in some way ; and ionisation counters, electrometers, radiometers, spinthariscopes, &c., then show that some renewed activity is actually taking place.

When one oscillates or shock-excites a target by means of, say, either an h.t. induction coil (giving aperiodic Hertzian effects over a very wide range of frequencies) or else a beam of cathode or gamma rays, it seems that the atoms and molecules vibrate in response, and emit ultra high frequency Hertzian or even (?) gamma rays at wavelengths that are evidently characteristic of the specific materials involved. And such a phenomenon was recorded many years ago by Barkla and Moseley, who bombarded various materials with " hard " gamma rays, the former then fluorescing and re-radiating at slightly lower characteristic wavelengths. But a sensitive dowser can detect far weaker and more subtle effects than that, and either f.r. analysis or the " linear wavelength " method (see below) seems to enable him to get a kind of symbolical frequency measurement with reference to electro-magnetic waves emitted by different materials which are in some condition of atomic or molecular oscillation.

In the laboratory I have used with success interrupted 6v. d.c. to energise a powerful vertical solenoid containing the specimen for analysis. (Half-wave rectified mains supply is inadvisable, as interfering effects may be introduced, plus accentuation of the cardinal beams). This seems to provide both the needful magnetic stabilisation and also some degree of inductive shock excitation to amplify the natural effects on weak days ; but too strong a field adds to the difficulty of ascertaining the central peak of the beam (P), as explained above.

Screening and Absorption of the Rays

Various experiments, that cannot be detailed in this paper, indicate that we are here dealing with an electro-magnetic wave radiation of "optical" type, capable of reflection, refraction, dispersion, polarisation and absorption, that is in some strange way (yet unknown to classical physics) dispersed, polarised and deflected by magnetic fields; and for conclusive screening tests the source of the hypothetical radiation must be enclosed in a completely sealed Faraday cage of absorbent material.

TABLE 4

Absorption of "Soft" Component of Dowsing Radiation from 1oz. T.N.T. by Various Materials, as shown by change in Spread of d/f Beam. (Normal divergence, unscreen=90°).

Screening Material	Thickness of same	Reduction of d/f fan
Dry Atmospheric Air	100 mm.	0%
Clear Glass (bottle)	1 ,,	5%
Water (distilled)	50 ,,	5%
Iron (curved sheet)	1 ,,	25%
Lead (in curved sheet)	1 ,,	35%
Ditto	5 ,,	70%
Ditto	50 ,,	85%
Damp Humus Soil (garden)	50 ,,	35%
Damp Sand (impure)	50 ,,	45%
Dry Lime (chalk).....	50 ,,	15%
Water (distilled)	25 mm.	5%
Water (thoriated impure)	25 ,,	25%
$CuSo_4$ (conc. aqueous sol.)	25 ,,	15%
Glass (clear picture).....	25 ,,	25%
Paraffin (liquid, fuel)	25 ,,	0%
Paraffin Wax (sheet)	25 ,,	0%
Woollen Felt (light texture)	25 ,,	0%
Wood (dry pine)	25 ,,	5%
Fibre Board (light texture)	25 ,,	5%
Limestone (dry oolitic)	25 ,,	5%
Slate (dry blue-grey)	25 ,,	16%
Asbestos (cement sheet).....	25 ,,	55%
Ditto (fibre sheet)	25 ,,	55%
Paper (soft, unglazed).....	25 ,,	10%
Ditto (heavy, lead glazed)	25 ,,	25%
Asbestos Sheet (1 thickness)....	3 ,,	30%
Ditto (10-12 thicknesses)	50 ,,	90%
Radium Bromide (film)	1 ,,	45%

Critical tests with various wire meshes, using the new form of radio-electrometer briefly discussed in ***B.S.D.J.***, 48, 49, 51 and 54, and in the Appendix to L. E. Eeman's *Co-operative Healing* (F. Muller Ltd., 1947), suggest that wavelengths shorter than 1mm. may be involved. But there remains some extremely penetrative component in all dowsing experiments that causes physiological and instrumental responses through solid metals and other materials, even when the detector is hermetically sealed. And the ionising and photo-electric effects of some " dowsing " fields, that appear even to disrupt unstable radio-active meterials in a manner previously unrecognised by physicists, likewise indicate that a very high frequency radiation of gamma ray (?) class may be involved, in addition to slow-moving electrons and various Hertzian waves, say.

Theoretical conclusions are therefore very hard to draw from instrumental and screening tests; but one can say that some radio-active component that seems to cause the fan-spread effects of the d/f and f.r. beams described above suffers appreciable and progressive absorption (as judged by decreasing reaction strength and SS fan spread) by various thicknesses of different screening materials; and results of one set of careful tests in 1942, first done physiologically and then checked by ionisation counter technique, are shown in *Table* 4.

Note that metals and good electric conductors were most absorptive; that 50mm. of lead or of asbestos-cement sheeting resulted in almost complete absorption; that the latter increased with the thickness of screening materials; and that paraffin wax was, apparently, ineffectual, though known to absorb *gamma rays* to some extent.

Theoretical Note

In the latter connection, it may be noted that T. B. Franklin thought he had been able to show by a few preliminary tests that paraffin-wax sheets when placed in a strong f.r. beam, partly screened by metal, and then left in contact (wax away from sensitive film) with photo plates, gave some evidence of gamma-ray activity in such a beam as compared with normal control sheets placed elsewhere.

This test I hope to repeat, as it falls into line with my own data with an ionisation counter and a special kind of spinthariscope, as will be mentioned later in this paper. So it looks rather as though the central " P " beam component of the fundamental ray may involve gamma rays or some other highly energised rays or particles; but how such rays could be directionally dispersed and " polarised " by the weak magnetic fields we employ is at present incomprehensible; and this kind of dilemma is typical of all attempts, so far, at theoretical interpretation of these fields and rays. Nor is it understandable how or why

the f.r. values for the various materials we tested, also the light and Hertzian frequencies (see below), are spread out so as more or less to fill up the 360° chart. Yet these facts seem to be inescapable, since suggestion and other psychological factors were rigidly excluded throughout our work. Nor had we any conscious preconceptions or prejudices.

One nuclear theory, involving gamma rays, attempted by Franklin in 1942, assumed that some corpuscular radiation from a particular point in space (the magnetic orientation of which would therefore rotate 360° each day) might be locally stabilised by the applied magnetic field, and that such a beam of corpuscles on hitting the target might produce :—

(1) a gamma-ray beam, the angle of which to the original beam would depend on the atomic number of the elements involved, and

(2) a photo-electric beam, almost certainly at right angles to the gamma-ray beam.

And mathematics indicated that the angle of rotation could not exceed 180° for any element, after which the series should repeat up to 360° in reverse order. But this effect, plus the single photo-electric beam at right angles to the primary beam, Trinder and I, and others, were unable to confirm experimentally.

It was also suspected that :—

(1) There might be no essential difference, except in intensity, in the composition of the central " P " and marginal " SS " fan effects.

(2) That the beams might be a mixed lot of gamma rays of more than one frequency, plus photo-electrons.

(3) That the penetrating qualities of the beam might depend on the atomic number of the elements composing the objective.

(4) That the shorter wavelength, more penetrating rays might tend to be nearer the middle of the f.r. beam.

Thus some parallel work of which we were informed privately showed that when photo-electrons were emitted by a hot tungsten filament, passed through a set of narrow metal slits and allowed to hit a target plate at various applied voltages, *they were then re-radiated at different angles (for max. intensity), depending on the voltage used, also according to the nature of the target ; and a gamma-ray effect was also detected therewith.*

Again, it would appear possible that atomic number (as we found) might be a factor in the gamma-ray frequency of the supposed rays constituting specific f.r. beams, &c., in the sense that Moseley found some years ago in his work on X-ray spectra. For instance, the formula Atomic no. $= \frac{K}{\sqrt{\lambda}}$ where K is a constant and λ the wavelengths of the corresponding lines of the X-ray spectrum.

The nature and behaviour of electrons themselves may also have a bearing on the present problem. For instance, Stern and Gerlach found that in a non-uniform magnetic field electrons with opposite spins are deviated in opposite directions, creating a fan of angular spread proportional to their voltage; and that was what we observed both by dowsing and instruments in the case of the conical axial beams of reaction from bar magnets. Stern and Gerlach (1921) observed that elements such as Ag, Li and H, having a *single positively or negatively spinning electron* in their outermost shell, have their uncharged atoms split up into two equal and oppositely deviated beams; whereas He, which has *two oppositely spinning electrons*, is undeflected by a non-uniform magnetic field. Thus either a sharp central " P " beam or else an " SS " fan effect might result.

Again, recent work has indicated that massed electrons are aperiodic (untuned) before diffraction by crystal lattices, and only demonstrate periodicity and have harmonic " wave " frequencies associated with them, corresponding to their various selective velocities, after passing a grating or diffraction lattice—like spectral colours of visible light.

Finally, it is reported from America that electrons appear to radiate energy continuously on their own account, thus providing an additional possible source of dowsing radiation.

The foregoing vague theoretical hints are in no way intended to *explain* the fundamental and cardinal rays, so-called, though they may ultimately be found to provide some general pointers or analogies; and the close similarity between our d/f beams in the case of bomb location, with their lateral fanning, dependent on mass, distance, energisation, &c., and the f.r. effects would appear to be too close to be merely analagous, while the former are obviously related to normal Hertzian effects, no matter how weak or of how high a frequency (so as to be undetectable by normal radio receivers), and could scarcely be interpreted in terms of gamma rays or electric particles. Moreover, we have found (see below) that both visible light of various colour frequencies and also Hertzian signals give rise to circularly dispersed " fundamental rays " in just the same way as do various elements, compounds and mixtures already discussed; only in the case of light rays and " wireless " waves no " samples " are needed to syntonise the dowser to the selected frequency.

Some fundamental and general physical principle—probably new to Physics—in relation to electro-magnetic waves in general, and of the effect of magnetism on such radiation would appear to be involved, for we are here confronted by what might almost be called a circular *magnetic* spectrum resembling that seen " clairvoyantly " (or by extended vision ?) by Baron von Reichenbach's sensitives in the last century, when a magnetised sphere was suspended in

a dark room. They also claimed to see a " reddish glow " from the S pole of a magnet or one apex of a long crystal, and a " bluish" one from the N pole or other apex—corresponding to an oppositely rotating polarised radiation or emanation from such poles, that is now instrumentally demonstrable by a new form of radio-electrometer. (See above).

The so-called " cardinal rays " (*magnetic* bearings) emergent from vertical conductors which happen to be in a state of natural or artificial electronic oscillation must also be taken into account in any general theory of this aspect of radiesthesia and "radionics," along with the concentric rings of reaction therewith and many other apparently Hertzian phenomena outlined in *The Physics of the Divining Rod* (Maby and Franklin, 1939). For all such phenomena appear to be electro-magnetic in the usual sense, resembling well-known diffraction, interference and polarisation effects in Optics. But the " fundamental rays " are more problematical, I think, as the foregoing remarks may have served to show.

In any case, I hope that this discussion may stimulate competent physicists or electronic engineers to tackle the whole problem more efficiently than I am able to do. However abstruse, I feel sure the subject would repay investigation, if only for academic reasons, in relation to wave mechanics and atomic physics, not to mention electronics and magnetism.

The Special "E" Value

At about 340° (measured clockwise from zero point, due East) on the f.r. chart is a point at which a special " electronic " response is obtained whenever the object of analysis is in a state of inherent activation. By this I do not mean gross electric oscillation of the sort that generates normal wireless waves, but, say, emission of beta particles or photo-electrons ; and this f.r. value corresponds to a Hertzian radio frequency of some 30 megacycles/sec. (see below) and to a beat wavelength of 135-145cm. on the alternative linear scale, the two systems being directly correlated, as will be explained later. (*See Figure* 1).

Truly radio-active materials were first found to give this " E " beam without a " sample " having to be carried—thus showing that it was a distinctive effect ; but it was later noticed that cancerous tissues, active vitamins, living organisms and some impure waters and soils that were known to be noxious to health, if not actually cancer-producing, also produced the " E " beam. But unless they were appreciably radio-active, a specific "sample " was more or less essential, as in the case of normal f.r.'s. Phosphorus, note well, is also strongly reactive in this sense.

It looks, therefore, as though this special effect were due to a particular kind of electrical activity (or instability) in some forms of matter that is also of special biological significance—beneficial in moderation, but harmful in excess.

(NOTE.—Whalebone happens to fall approx. at "E," so may act as a "sample." Clothing or foodstuffs that happen (rarely) to fall near "E" seem to be particularly harmful to the health and comfort of sensitive people.

Generic and Specific F.R. Values

Because every additional constituent of a mixture alters the resultant position angle of the "compounded" f.r., different specimens of impure water, wood, hair, bone, &c., give distinctive individual f.r. values that may lie anywhere around the circle; though pure water, pure ligno-cellulose, pure calcium phosphate, &c., have fixed f.r. values, dependent on their formulae as standard chemical compounds. The pure values we may call *generic*, the impure ones *specific*, individual or (for human subjects) personally characteristic.

This fact is a great help in specific identification and precise matching, and the *specific* f.r. value will only be got by using an exactly matched "sample" for syntonisation to the objective; whereas the *generic* value can be got from any specimen of water, wood, urine, hair, &c., by carrying another cample of the same generic material that does not exactly match it in terms of admixed substances. Thus the f.r. for pure H_2O can be got from *any* water specimen if some different water sample is carried in the dowser's hand, or better still, if a pure distilled water sample be used. Then the single pure compound is syntonised and its appropriate f.r. obtained.

Similarly, single elements can be "picked out" from compounds or mixtures that contain them by use of pure elementary "samples," but the reaction will not be so strong as the "mass reaction" effect for the entire compound or mixture when matched up in its entirety.

Individual Human "Wavelengths."

I think that the electronic "E" value that gives repeating linear wave-bands of either about 70 or 140 cm. (half and full-wave) spacings, such as one also gets from all electrified sources, apparently, is often erroneously supposed by medical radiesthetists to represent some special "vital wavelength." In fact, however, it probably is merely an index of electro-chemical activity, though this may be correlated to immediate degree of vitality and health; but I doubt whether this value alters with health, except in so far as the mean *intensity* of the effect may vary.

The individual and personally characteristic f.r. for any given human subject, however, can be got by using any one organic tissue or body fluid of the given subject as a specimen for f.r. analysis, and taking another of his or her tissues or fluids as a "sample." Such personal human values mostly fall within an arc extending about 45° either side of due W on the compass dial (180° on our stabilised chart). But a few extreme cases have been detected outside this mean range.

Most healthy, normal subjects seem to fall within about 20° of the middle of the human group; many artists, psychic sensitives, good dowsers and young women being 180°-210°, and more "rational" intellectual and "masculine" types between 150°-180°, whereas abnormally emotional, "intuitive" or primitive subjects are found above 210°; while abnormally logical, "dry-as-dust" or senile people tend to fall below 150° on the chart (all measured from zero point, due E). And the best-balanced folk, who seem to represent a happy (rather rare) medium make-up and resultant temperament, are around the middle of the whole human group, due W, at about 180° dial reading. (*See Figure* 4).

It is interesting to observe that predictions as to general temperament on this basis have been remarkably accurate over the past eight years of observations on over 100 subjects; also that extreme types in either sense are found to be unbalanced psychologically (tendency to insanity if too far clockwise); and that married couples, friends or lovers who nearly coincide as to their f.r. values tend to be harmonious and happy, but conversely (no matter how hard they try) if widely separated on the chart. Moreover, human subjects' f.r. values seem to coincide with their instinctive colour choices, as determined by light tests (not merely artistic choice) on a chromotherapeutic basis.

Thus people in the middle of the group prefer mid-green, and the clockwise and anti-clockwise extremes orange-red or blue-violet respectively; and we shall see that the f.r.'s for corresponding colours of visible light (below) coincide with these positions on the chart. So it all seems to be a matter of radiesthetic harmony and syntony, or conversely—a purely physiological factor after all.

Other organisms also seem to fall into generic groups as shown by *Figure* 4.

Coloured Light Rays and the F.R.

In view of the claim by some dowsers that colours can be used as (symbolic) "samples" to "tune in" to different materials, also alleged analysis by means of a Mager "colour rosette," it was decided to test various frequencies of coloured light by the f.r. method. Contrary to expectation, the results were positive.

A 100 watt 230v. electric lamp was enclosed in an opaque wooden box with an orifice at the top, carrying glass colour filters, over which was fitted a hemispherical diffusing lens that bathed the whole of a darkened room uniformly in nearly monochromatic light. (Checked by photometer). The projector was placed at the centre of the f.r. chart, and the usual (vertical) stabilising magnetic field applied. The dowser then walked around the circle with a balanced rod and firm grip awaiting responses—which he did several times before drawing conclusions or marking out a zone of reaction. Several unprejudiced subjects checked these

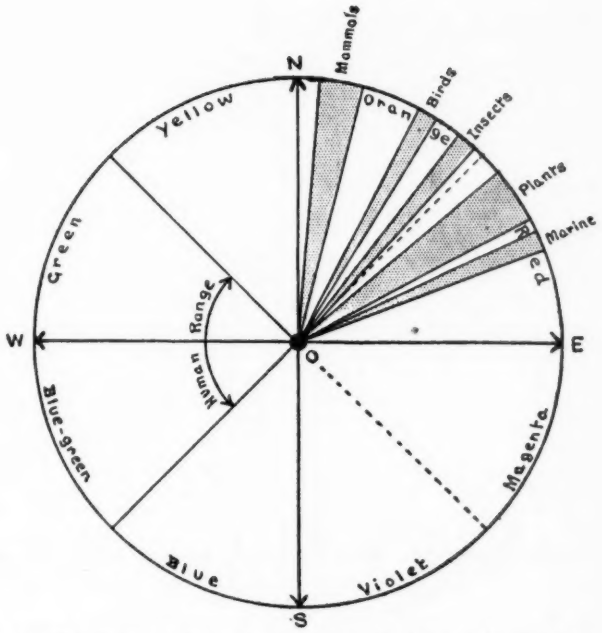

Fig. 4. This diagram indicates how the spectral colours are dispersed (roughly in the eight 45° sectors, ENE, NNE, NNW, etc.) around the f.r. circle in proper sequence. The main generic groups of living organisms (shaded fans) and the approx. NW to SW zone for *individual* (specific) human values are also shown; though Man also falls in the general mammalian group generically.

effects independently without being watched or told what to expect, with good general agreement.

It was found, without doubt, that when the arms and hands were uncovered (not otherwise, apparently) *strong dowsing reactions were got to the main colours, in proper spectral sequence* (*See Figure* 4), gradually blending into one another, with frequency increasing in a clockwise sense; and this was so even when dark glasses were worn and the colour filters inserted at random.

At first we had gaps of about 45° spread; but a blue-green and a reddish-purple filled these gaps; so that the series was complete from red to violet and back to red again *via* magenta, starting and ending due E as in analysis of materials. Nor was there room left for white or impure colours; pure white light presumably giving equal energisation in all directions, so that there is no localised response due to sudden change of muscle tonus. But

for spectral colours of bright light f.r. effects are created in order of circular " magnetic dispersion," dependent on frequency. So it is conceivable that such colours might, when correctly chosen as to corresponding f.r. angle, act as specific " samples " for different materials. If so, harmonic frequencies may be involved in effecting the translation.

Hertzian Signals and the F.R.

An even more significant experiment, twice repeated with different transmitters, was as follows, the remarkably clear results of which are shown in *Figure* 5.

A vertical aerial at the centre of the f.r. circle was artificially oscillated at various frequencies from 150 Kc./sec. to 45 Mc./sec. by a standard Hertzian signal generator, and any resultant radial fans or beams of dowsing reaction defined as before. Care was taken to pre-set the tuning dials " blind " and at random before each trial, to avoid any fore-knowledge or wishful thinking ; and the objectivity and repeatability of the graphed f.r. values were checked on two subsequent occasions by taking more " blind " readings. These repeats fell on, or very close to, the original curve, and the very low mains frequency of 50 cycles/sec. was also found to fall near the origin, just South of East ; the other values proceeding in a clockwise sense with increasing frequency, as for coloured light, and leaving a small gap between my highest available radio frequency and the end of the circle, as for the elements.

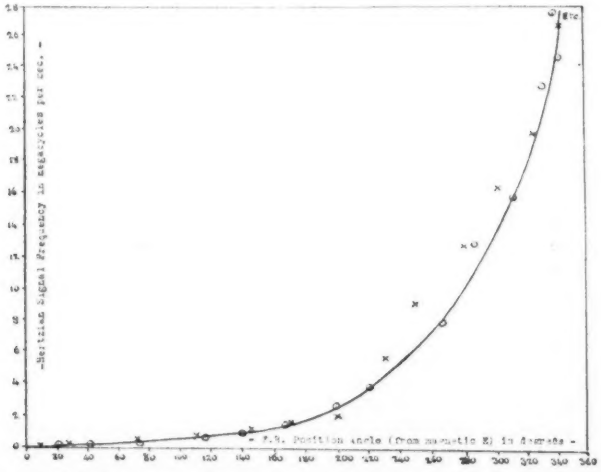

Fig. 5. Relation between Hertzian Frequency and F.R. Position Angle.

But despite the curious and rather suspicious fact that each distinct series (for elements, &c., for coloured light, and for very long to ultra-short Hertzian waves) seems to occupy one full-scale 360° revolution of the f.r., the results appear to be repeatable and (see *Figure* 5) to graph so smoothly that no room for doubt exists.

So I must leave it at that; only remarking that the possible effects of sonic and ultra-sonic waves, ultra-violet light rays and gamma rays have not yet been examined—as they must be one day—owing to technical difficulties and lack of time. Sound effects, if any, would be important, but they are highly improbable, as they do not form part of the electro-magnetic spectrum. The other two e.m. series, however, might well be found to cause f.r. beams revolving around the circle in clockwise order of frequency again; but on a frequency basis, one might have expected the atomic/molecular series to run in reverse order to that actually found.

Thus there would appear to be some harmonic agreement between superimposed values for the successive (Hertzian, infra-red, light, ultra-violet and gamma-ray) series. For example, my own body f.r., monochromatic grass-green light rays and a Hertzian signal of about two megacycles/sec., coincide at about 195° on the circular chart; whereas metallic lead, pure ligno-cellulose (wood) and orange-red light source, or else a Hertzian signal of about 20 Mc./sec., exhibit f.r. coincidence at about 322°, and so forth.

Linear "Wavelengths" and Radionic "Rates"

A further convincing proof of the objective reality and analytical value of the f.r. atomic-molecular scale is the fact that they are directly convertible into "wavelengths" on another linear system of radionic measurement, and into dial "rates" on the medical diagnostic instruments (Abrams, Starr White, Wigelsworth, Drown and de la Warr), as mentioned in my paper entitled "Are We Dealing with Electro-magnetic Waves?" in *Radiesthesia III*, 1948; and that all these systems, when correctly defined, are referable to atomic or molecular weights. This has already been shown by the graph in *Figure* 2 above, and excellent straight-line relationships were found between a number of "radionic rates" —got by Miss Darle Davis, B.A., D.C., on a set of (to her) unknown common materials in sealed tubes, using a Drown diagnostic set—and our f.r. values for the same materials.

These values were obtained by averaging several trials on each specimen, and they gave much better correlation than did the official listed values (Drown) for other materials, many of which were hopelessly out of alignment with f.r. and chemical data; but Miss Davis's readings were found to fall into three main groups, when thus graphed, two of which clearly resulted

from 90°-180° " phase shifts," in terms of the f.r. technique owing to lack of magnetic stabilisation. When, however, a magnetic device incorporated in the de la Warr set was applied, then all values fell very close to a single straight line, thus indicating the general validity of both methods and their relation to chemical formulae and dependence on magnetic phenomena, respectively.

But wishful thinking and any sort of " psychism " must be avoided. Moreover, *there is always some degree of spreading of the band, fan or zone of reaction*, corresponding, apparently, to a real frequency spread in some instances, or to a gradual rise in field strength to a central peak value in others—as discussed above (*see Figure* 1) and in my paper in *Radiesthesia II*, 1944, " Testing for Radiesthetic Sensitivity," and in the third issue of same, already cited. In either case great care is needed to get the peak of the zone or band accurately for directional, diagnostic or other purposes. This also applies to field survey work when centring over hidden targets or trying to measure the field strength (*e.g.*, for yield of water) by means of band width.

N.B.—The margins of any dowsing field or band are often mistaken for the central peak or else " vertical," so that faulty locations, or qualitative and quantitative misapprehensions may result, and the wider and stronger the zone, the harder it is to centre up accurately or to measure absolute intensity. *Moderate* width and intensity usually give the most accurate results in all cases.

Note, too, that specific " samples " are essential, in order to be tolerably sure of a correct *interpretation* of the f.r. position angles, dial " rates," &c., else diagnostic results may mean nothing. Far greater caution is needed, both qualitatively and quantitatively, before dowsers' findings can be reckoned dependable ; and it is only by rigid scientific tests (such as the Forces insisted on in the War or commercial field dowsing entails), in which excuses and errors are not accepted, that objective truth is sorted from mere dream castles.

Linear Scale Effects

Space does not permit me to detail here our earlier work with rod and ionisation counter on the linear scale " wavelength " effects that also showed nearly perfect correlation to atomic and molecular weights ; *strong peaks in the field being got at specific distances from the faces of different materials, proportional to atomic or molecular weights, provided a matched " sample " was carried in hand or incorporated in circuit*. But many hundreds of trials had to be averaged, or a response distribution curve plotted, in the case of the ionisation counts, in order to obtain clear, smooth graphs of the type shown in *Figure* 6.

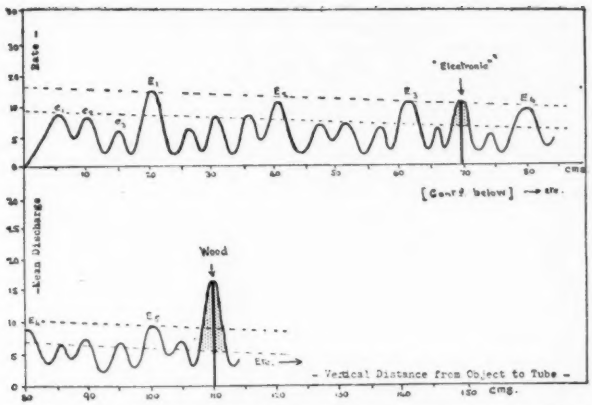

Fig. 6. Graph of Serialised Standing Waves or Beat Bands (?) due to Reaction between a Moving Block of Wood and an Ionisation Counter Discharge Tube; showing the additional peaks for *Wood* and the "*Electronic*" band.

These curves are typical of several obtained by the ionisation counter technique, in which the given object was moved slowly and steadily to and fro over a vertical distance of 150cm. (full scale on this scheme) above the detector tube of a special ionisation counter, the "shower" discharges of which (after elimination of the generalised background of ionisation) were plotted against distances of occurrence. But it was essential to work at quiet, unperturbed times, usually at dead of night or in foggy, anti-cyclonic weather, when moving cloud masses, cars, aircraft, &c., were not causing gross disturbances of the local field.

Note that *all* objects, of whatever kind or shape or size, also give *a basic series of "electronic" waves of response every* 6-8*cm., with a mean tendency for each fourth wave to be extra strong, in addition to the specific* ("*tuned*") *responses to the given material.* And similar effects were obtained in the War by T. B. Franklin and myself on moving targets, such as aircraft and automobiles (so-called "Fraby" effect), but on a grander scale; including marked directional pick-up by means of a special "magnetic eye" device.

Specific Reaction Strength: Time and Number.

The phenomenon of "serial numbers," used by some dowsers for analytical purposes, is also related to atomic or molecular weight, if I am not mistaken; though individual dowsers may get differing values owing to variable sensitivity. But if one adopts a standard technique and tension, and holds a matched "sample," then fairly consistent *reaction times* (RT) and *serial*

numbers of reactions (SN) before final cessation or reversal of the response occurs can be got by a given dowser—especially in the vertical or f.r. beam of a large mass of the same material. (*See Table* 5).

TABLE 5

Relationship between Atomic or Molecular weight of Substance and Reaction Time or Serial Number

Number	Serial Number (S.N.)	Reaction Time (R.T.)	Product of S.N. x R.T.
C	$1\frac{1}{2}$	44	66
Al	3	24	72
Fe	$4\frac{1}{2}$	16	72
Cu	6	11	66
Zn	7	10	70
Cr	8	9	72
Ag	10	7	70
Sn	11	6	66
Au	12	$5\frac{1}{2}$	66
Pb	14	$4\frac{3}{4}$	66
Ra	20	$3\frac{1}{2}$	70

The heavier the element the higher the serial number, but the shorter the reaction time of each response, and conversely ; and this seems to be due to two facts :—(1) that the lower the radio frequency acting on the detector muscle group the stronger and quicker the reaction ; and (2) that muscles in standard tension become used up or " saturated " by the given stimulus after a fairly constant time lapse. So that the quicker the response (RT) the greater the number of serial reactions that can be evoked before saturation results, and conversely. Hence SN x RT=K, where K is a personal physiological constant—in my case, at least, of average value about 69sec. (*See third column, Table* 5).

That some relationship connects atomic weight (or number) and the ionising and reactive nature of the resultant radiation at short range is indicated by the average of ten trials each for the elements given in *Table* 6. Both columns indicate increasing electric ionisation with increasing atomic weight, since muscular reaction time decreases as the field or radiation gets more effective. Sensitivity had to be standardised, and quiet fine weather periods chosen ; thin sheet metal 4in. square (thickness does not seem to matter) being placed vertically below the spark-gap or reactive muscle group at 7cm. distance. A very thin film of radium bromide, totalling only a fraction of a milligramme, provided the last specimen.

TABLE 6

Relationship between Atomic or Molecular weight of Substance and Instrumental or Dowsing Response.

Ionisation Counter (Mean Discharge Rate)		Human Muscular Response. (Av. Reaction Time)	
Al	10 min.	Al	25 sec.
Cr	22 „	Fe	20 „
Fe	23 „	Cu	16 „
Cu	26 „	Zn	16 „
Zn	24 „	Ag	12 „
Mb	42 „	Sn	10 „
Sn	50 „	Au	8 „
I	56 „	Pb	5 „
Au	68 „	Ra	4 „
Pb	66 „		
Hg	71 „		
Ra	90 „		

Similar differences have been noted by various workers with electroscopes and growing organisms sensitive to " mitogenetic " rays that suggest photo-electric activity near metals, plus more penetrating and ionising gamma rays, &c. But our data suggest a more subtle dependence on actual atomic weight of the " target," and, perhaps, resultant gamma rays or beta particles (electrons) of proportionate frequencies or velocities. (See earlier theoretical remarks).

Instrumental Checking of F.R. Beams.

This has been attempted by three means, so far, in addition to Franklin's brief photographic tests for gamma rays, using absorbent paraffin-waxed screens, and results, however preliminary and delicate, seem to be positive.

1.—A *spinthariscope* was made up in the form of a small telescope (less object glass) in a short tube, containing first a very thin and weak radium bromide film, second an airtight 1mm. cardboard screen of which 25 sq. mm. were painted with a thin film of zinc sulphide in gum arabic, followed by a suitably spaced ($\times$ 10) magnifying eyepiece. The objective end of the tube was also sealed up with thin white card, and the screen carefully watched for bright scintillations, representing beta particles from the radium salt, after dark-adapting the eyes for twenty minutes. The mean rate per minute could then be counted by eye.

The average rate at normal, quiet times away from other radio-active sources was found to be around 15/min. But greater variability from 3-60/min. was noticed, according to time and

place, and confirmed by four other observers in good health, with normal vision, that could not well be attributed to visual fatigue or other subjective factors—especially as two standard counters showed parallel variations when recording mechanically.

Some of these variations were attributable to moving objects (" Fraby " effects) as mentioned above, when the scintillations came in bursts, followed by pronounced lulls. The weather and the siting and directioning of the instrument also mattered as for ionisation counters. And directional response was well shown by observing a 2ft. square sheet-iron screen interposed before a specimen of radio-active salt. Then definite showers of scintillations appeared when the spinthari-telescope was pointed straight at the (screened) object, also some extra scintillation around the edges of the metal sheet; analagous to direct " P " or d/f beam and marginal " SS " fan effects—the letter presumably due to diffraction of gamma rays. All these observations are novel, I believe.

There also seemed to be some extra response when the tube was pointed, in the dark, at an h.t. mains transformer 100yds. distant, or at a metal box containing radio-active specimens some 10 yards away, thus confirming directional reactions and our other instrumental work.

When this little instrument was mounted on a radial arm and revolved around an oscillating coil (mains frequency) in a dark room, four sharp cardinal beams were detectable; and the " E " beam (f.r.) from a sharply radio-active body could be observed by its marked " shower " effects at 340° on the chart. Also a strong central reaction with collateral marginal responses about 5° either side were noted, corresponding to the " P " and " SS " triple effects described elsewhere.

2.—The argon-filled discharge tube of a special ionisation counter was mounted centrally in the circle and specimens of uranium, copper, wet clay, wood or even glass were severally inserted in an energised solenoid, as described in an earlier section. The latter was then slowly revolved around the detector tube on the end of a 70cm. radial wooden arm. When a " sample " of the same material was inductively coupled to the detector circuit or placed immediately below the detector tube, *then clearly increased discharge rates were observed* (by loudspeaker or special meter capable of smoothing the impulses) *when the specimen and detector tube were aligned in the f.r. beam for the given material*, as previously determined by dowsing.

At low discharge rates counting by ear gave fairly clear distinctions *in* and *out* of the beam, or else when the specimen was present or absent, granted first-rate dowsing conditions. (*See Table* 7).

TABLE 7

1.—*Effect on Ionisation Rate of* 1 *gram of Thorium Oxide when placed in Oscillator Coil in F.R. Beam.*

Conditions	Thorium Present	Thorium Absent
Mean Rate/min.	16.7	13.2
Range of Variation	11-23	7-21
Av. No. of " Showers " ..	3.4	2.2

NOTE.—That is to say, Mean Rate increased 26.5% and " Showers " increased 54.6% when the Thorium was in the coil.

2.—*Effect of Mean Ionisation Rate in F.R. Beam of* 25 *grams of Damp Clay* (*in glass tubes*) *placed in Oscillator Coil.*

Conditions	Clay Present	Clay Absent
Mean Rate/min.	32.9	24.7
Rate of Variation	18-49	8-37
Av. No. of " Showers " ..	4.0	2.4

NOTE.—(1) That is to say, Mean Rate of Discharge increased 33.2% and average number of " Showers " per minute increased 66.7% when the clay specimen was in Coil.

(2) But no evident change occurred when the specimen and detector tube were out of f.r. alignment, as shown below.

3.—*Ditto, but with Solenoid and Object out of F.R. Alignment.*

Conditions	Clay Present	Clay Absent
Mean Rate/min.	16.0	16.5
Range of Variation	5-23	10-30
Av. No. of " Showers " ..	1.6	1.5

For each test, ten alternate counts were taken under " quiet " conditions, and averaged. Ranges of variation and mean numbers of " showers " (extra to single discharges) are shown; the latter giving the best evidence of increased ionisation, as such bursts are superimposed upon the normal, fairly steady background rate. Note also that presence or absence of the clay specimen made no difference when it was not in f.r. alignment with the detector tube.

Concluding Remarks

This rather long account of some of our work since 1939 on the subject of specific frequency effects in relation to radiesthesia, especially the so-called fundamental rays, will, I hope, have at least served to show that the subject deserves detailed examination by competent physicists and electronic engineers, though we ourselves have, from lack of time and proper facilities on the instrumental and financial sides, so far been unable to do more than make a brief preliminary survey of a promising field of enquiry. One trusts, however, that our main findings are not too far removed from the truth. In any case, they begin to fit together tolerably well. They should, eventually, also throw considerable light on the foundations of dowsing, if not also upon the deeper levels of electro-magnetism and atomic physics.

But initial antagonism to such ideas is likely to result, as I, for one, am painfully aware, though this need not deter us from further research in this intriguing subject; and my next aim, as soon as time and funds permit, is to construct a really precise electro-mechanical apparatus capable of automatically recording such effects in graphical form, the designs and materials for which are already to hand.

In principle, this will consist of a carefully stablilised ionisation counter, battery driven, with a heavily lead-screened detector tube, having a system of aligned narrow slits on one side facing the energising solenoid and the electrically bombarded specimen for analysis, mounted on a radial arm as before. The latter will be motor driven at a rate of about one rev. per min. through reduction gearing, and allowed to do (say) 100 rotations on end; automatic graphing of the discharge rate being done by means of an electro-magnetic Morse inker (actuated by an amplifying mercury relay tube) upon a paper strip (like a barograph strip, but ruled 0-360°), mounted on a synchronised revolving drum. If the marking pen be given a slow vertical motion across the paper strip, a series of grouped dots should result at position angles depending on the principal f.r. effects—to catch only the peaks of which the counter could be pre-set to any desired threshold.

Thus it is hoped that a novel kind of spectrogram, showing "transmission lines" of various intensities and widths, should result, and if such a feat can be successfully accomplished, really first - class physical evidence of these as yet unrecognised phenomena will then be available, and a new form of physico-chemical analysis established; but careful screening and siting of the observatory will almost certainly be needed, owing to the many disturbing factors mentioned in this paper and the very subtle nature of the effects in question.

HUMAN EMANATION AND ITS DETECTION

By A. GIVELET

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[The author is well known in scientific circles. He is *Ingénieur E.S.E. Diplômé de l'Ecole des Hautes Etudes Sociales : Licencié ès Sciences physiques : Ancien Vice-Président du Comité Central des Sociétiés de T.S.F. de France : Membre de la Commission interministérielle de la T.S.F.*

He is also responsible for the application of physics to industry in numerous inventions.]

Amongst manifestations of vital energy, one of the most strange is certainly the emanation which issues from the hands of most human beings. It is of extremely variable intensity, depending on the individual and on that individual's condition at the time.

The methods of revealing this form of energy, which is a measure of the vitality of the subject, are fairly numerous. There are, firstly, detectors of the Müller type, which depend for their working on the variation in the electric conductivity of the surrounding atmosphere, or of objects included in a circuit in proximity to the hand of the subject. Then there are the photographic or photo-electric detectors (notably photographic plates suitably screened so as to arrest calorific radiation from the human body, which might falsify the experiment, and certain photo-electric cells connected directly to electrometers); then there are the mechanical detectors, such as the sthenometer of Dr. Joire which consists of a very light needle resting horizontally on a pivot under a glass cover; and, finally, the biological detectors of which the commonest are the microbes used by Alexander Gurvich of Leningrad and his school for the study of the so-called mitogenetic radiations which are produced when cellular division takes place in living tissue.

It is clearly not possible here to make a comparative study of all these methods, so we will confine ourselves to the Müller detector. With this we have undertaken a considerable number of experiments whereby our results have acquired a certain statistical value.

This detector, an early and primitive model of which was constructed thirty years ago by du Bourg de Bazas to enable him to study the electric action of the hand of a doctor, is, theoretically at least, extremely simple. It consists essentially of an electric circuit including a very sensitive mirror-galvanometer, a continuous source of tension of a hundred volts or so,

and a special device which Müller calls the " Indicator." This consists of a couple of metal plates attached to a very thin plate of glass, or other suitable insulating material interposed between them, and thus forming a condenser. The metal plates, termed the electrodes, are each several centimetres long and about half as broad, and are connected one to the positive end of the 100v. battery and the other to the suitable terminal of the mirror-galvanometer. Between the negative end of the battery and the other terminal of the galvanometer is a switch, and shunted across the galvanometer terminals is a suitable variable resistance to protect this delicate instrument. That completes the Müller circuit.

It is obvious that when the battery is switched on, no matter how sensitive the galvanometer may be, no current should be able to circulate or affect it so long as the condenser is efficient and the insulation protected from moisture. An incandescent lamp will provide this protection.

But this is the surprise. If a suitable subject comes along and places his hand vertically, fingers upward, close beneath the vertically placed plates of the condenser, the insulation will break down and allow current to pass; not just at once, but after an interval depending upon the " fluidic " condition of the subject.

We must emphasize that the phenomenon almost always occurs after an appreciable delay sometimes running into several minutes. This delay entirely excludes the possibility of an electrostatic capacitative effect due to the approach of the hand, for if that were so, the deflection would occur at the instant the hand was brought near, and the amount of deflection would increase with the nearness of the hand to the electrodes. Actually, nothing of the sort occurs; the deflection is about the same whether the finger tips be one or two centimetres from the indicator, and at the outset nothing at all is observed. Then, little by little, the spot of light reflected from the mirror of the galvanometer on to the transparent scale, slowly and as it were reluctantly, leaves its zero position; often, indeed, it goes backwards, and the strong deflection occurs only after an interval of sometimes one or two minutes. The subject then appears to be " discharged "; the spot of light returns to its zero position, and there may be a delay of a quarter of an hour or more before the experiment can be repeated.

Naturally, there has been no lack of objections. It has been urged that the effect is the outcome of the natural heat of the body or of the humidity of the skin (which objection contradicts the previous one, for damp bodies cannot be electrified—but people of limited intelligence, who, in the name of Official Science,

deny the existence of the emanation, don't worry about such details !).

In the spring of 1935 we had the opportunity of demonstrating our experiments before an eminent scientist, the late M. Deslandres, member of the Institute, who was commissioned by the Academy of Science to investigate these phenomena. He was accompanied by a subject who gave out an emanation so intense that the result of the experiments was clear beyond dispute. Naturally, he felt obliged to refute the objections regarding heat and humidity. In the first case he brought a very hot electric iron near the apparatus and found no trace of deflection ; in the second he interposed a thin screen of aluminium a few centimetres square between the hand of the subject and the " indicator." He found that the deflection still took place, though more feebly than before owing to the absorbent power of the screen, but always quite unmistakably. The scientist then made the following pronouncement : " Your experiments are indisputable, and I find it impossible to deny the existence of a radiation from the hand, *but one cannot report this to the Academy of Science, because this discovery is in contradiction to the principles of Official Science and would raise too many objections.*

This declaration was reported at the fifth International Congress of Psychical Research at Oslo in August-September, 1935, where we had the good fortune to read a paper. It provoked shouts of ribald laughter from the assembly, and was reproduced in a number of foreign journals only too happy to reveal to the world the impartiality and breadth of view of French scientific thought.

If France seemed inclined to bar the road to research on these lines, the same could not be said for Norway. After the Congress at Oslo, the apparatus was installed in the new laboratory of the Institute of Physics at the University of that town. It was there possible to experiment with particularly effective subjects, such as the celebrated Norwegian magnetiser Steivar-Steivarson. This gentleman held in his hands an aluminium tube about 15 millimetres in diameter made of about 0.3mm.-gauge material, and in such a way that while one end was close to the indicator his hands were about 30 centimetres from it at the other end, and he himself was about a metre away from the apparatus. With this disposition the spot of light traversed about three-quarters of the scale ! The radiation from his hands must have penetrated the wall of the tube, causing ionisation of the air inside it ; the ionised particles then crept slowly along the tube, which was sloping towards the apparatus !

This enormous deflection lasted for several minutes, whereas with the best subjects it was seldom a quarter as great, and disappeared after a few seconds.

We have observed at numerous public demonstrations that professional magnetisers always caused a larger and much more rapid deflection than did the generality of subjects. At Caen, the famous healer, Maria Fornerod (of Sées), sent the spot of light beyond the end of the scale as soon as she got on the platform. Several days after returning to Paris, following a tour of lectures and demonstrations, I was called as a witness at the XII[e] *Chambre correctionelle*, before which this healer was being prosecuted by the *Sydnicat des Médicines de la Seine* for the illegal practice of medicine. After a brilliant speech by her lawyer, Me. Virenque, she was acquitted in the following words: "... whereas the witness Givelet, a well-known man of science, has measured the fluid of the accused with a purely physical apparatus, and whereas under these circumstances there can be no question of charlatanism ... I hereby acquit the accused and condemn the plaintiffs to pay the costs."

In a general way, we have observed in the course of some forty lectures and demonstrations in France and abroad that subjects can be divided into four groups:

(1) Magnetisers who cause exceptionally large deflections.

(2) People who live in the open air, such as farmers, drivers of motor vehicles, sportsmen, &c.; for such people the deflections are very pronounced, but do not exceed a third or a quarter of the foregoing.

(3) The usual run of mankind, that is to say, people who live a sedentary life but enjoy good health; for these the deflections are feeble but quite appreciable.

(4) Sick and anaemic people, notably cancerous subjects, who produce no deflection whatever.

In certain localities, such as Leysin (Switzerland), 1,400 metres above sea level, a place rich in ultra-violet rays, the average of deflections was very strong, even amongst tuberculous patients, probably owing to the increased activity of their metabolism caused by the ultra-violet radiation.

The following results were observed on an apparatus permanently installed in our laboratory in Paris. The strongest deflection (twenty to twenty-five centimetres) was given by the servant maid, a healthy country girl from near Zurich; the next by the author of these lines, who gave fifteen to seventeen centimetres; then by his son aged seven, who gave five to six centimetres; and finally by his wife, who was ill at the time and caused no deflection. Repeated observations at the same hour of the morning always gave indications of the same order; the values might vary by ten per cent. to twenty per cent. from one day to another, but the classification of the subjects always remained

the same. It should be mentioned that M. Müller, at the " Salus " Institute in Zurich, uses the apparatus to test the health conditions of his clients.

It is essential in experiments of this kind that the subject should always be in the same physiological condition. For example, it would not be right to compare a subject fasting on one day with the same subject after a good meal on the following day. During digestion the blood flows toward the stomach, and the emanation which, according to Müller, is due mainly to the presence of blood in the organ studied, to wit the hand, is considerably reduced after a heavy meal.

The hands which give the strongest deflections are endowed with strange powers. Apart from the numerous cures which can be attributed to them, they are able to desiccate living tissue after a certain number of passes. We know a good many people who have successfully desiccated bits of meat and fish in this manner. A well-known radiesthetist, Mme. Noël-Lasserre, during a very interesting lecture which she gave recently at Paris, exhibited a cutlet and a sardine which she was keeping indefinitely, having sterilised them by the action of her hands. In 1921 we met a healer, M. de Duber, who kept on his balcony in the Rue de Tocqueville at Paris a skylark which he had preserved from decomposition by making simple passes over it. Whatever Official Science may say, it is evidently difficult to attribute such phenomena to heat and humidity.

As objections to the existence of the emanation, these ideas of heat and humidity were becoming a little unfashionable, and something new had to be found. Shortly before the last war, M. Leprince-Ringuet, the expert on cosmic rays, stated during a lecture on that subject at the French Society of Electricians, that the Geiger-Müller counter which he used to detect the rays reacted at the approach of the hand, indicating thereby the existence of unknown radiations. As a counter of this kind is hermetically sealed, the objection of humidity was *a priori* ruled out. He then started a theory that the radiations might derive from the potassium in the human organism, this metal being, as he said, slightly radio-active. The objection to this is that potassium is present in such feeble proportions in the human body that such an hypothesis is clearly inadmissible, whilst it is not ordinary potassium that is radio-active but one of its isotopes. So we see that this explanation, despite its ingenuity, is sadly lacking in simplicity ! And is not simplicity the hall-mark of truth ? *Simplex, sigillum veri*, said the Romans of old. Is it not, then, more logical to admit, without further ado, the existence of the human fluid ?

CARDIOIDS

Part II

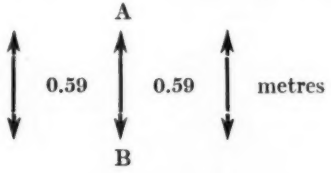
By D. O. KING

The nucleus of a cardioid is identified if, on walking forward, an unusually closely spaced rise-fall sequence of a horizontally held motorscope or forked rod is suddenly checked or it revolves indefinitely (until fading occurs) on circling a spot where any abnormal movement has occurred. The small area thus set out is roughly oval in plan, and a series of withdrawals and advances with the instrument, now held vertically downwards in front of the body, will locate (by " pushing against ") the rings and turn-in of the cardioid of a stripe, underground stream, tree, person, &c., as the case may be. The directions given in paragraphs 1-7, pages 28-29 of Mrs. Pogson's *The Art of Water Finding* for laying out a well site can also be followed in the case of a water cardioid, but read " satellite " for " spring " in paragraphs 6 and 7.

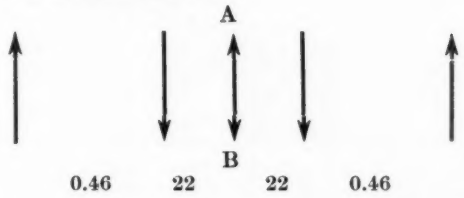
The rings are highly unstable in that not only do they expand from and contract towards the nucleus, but they split into trios at the moment of greatest expansion of the cardioid, which heralds its disappearance and replacement by a grid. They can also be contacted by side-stepping towards, but not away from, the nucleus.

To contact the satellites, it is necessary to walk in the circumference of each ring in sometimes a clockwise, and, at other times an anti-clockwise, direction. They also become trios at the moment of greatest expansion of the cardioids, so that nine instead of three will be found on each ring in the case of a three-ringed cardioid.

The grid-lines are best located by side-stepping towards the median lines, and, on turning around to face the opposite direction, each reaction will be found exactly at the same spot. This " singleton," which is typical for a grid line, differs from a stream flow-line in that the latter is a " pair." Thus, for any grid line, the reaction is, while in trio state and in an actual case :—



and that of a stream-band is:—



the latter showing a " pair on each side of the stream centre line A-B which corresponds to the median line A B of a water cardioid-grid. Note that the grid line A-B rarely manifests simultaneously with the two " flow pairs," and that the directions of the arrows is reversed on change of polarity. Thus Mr. Applegate may be correct in stating that a stream-band consists of five influence lines, refer to page 80, *B.S.D.J.*, VIII, 61, although, in the strict sense, it consists of either three (grid state) or four (flow state) lines.

A horizontally held rod pulsates and does not come to a definite rise and fall—see page 79, *loc. cit*—when standing on any grid line and while facing the median line, so that, when this is reached, pulsations must occur when facing two directions and on side-stepping to the right or left until the knot, i.e., the site of the future cardioid nucleus, is reached, the pulsations are in four directions. And just prior to the appearance of the nucleus they occur while facing eight directions, followed immediately by revolutions-cardioid in full action. It is over this spot that our village dowser thumps himself to exhaustion with an extremely short and thick rod, and a dry well is sunk unless he happens to have struck a water-cardioid and not a stripe-cardioid.

On the other hand, a quick or optimistic traverse of a grid results in a misleading rise and fall of a rod as each line is crossed, as far as the central line. But no flow lines have been contacted, and side-stepping will prove this, as pointed out in paragraph above. Moreover, no reactions occur, except for a slight drag, when the centre has been passed, so that any subsequent movement must be due to some other influence which lies in front and not behind. A similar gap or break is found when walking up and down on, or on either side of, any stripe parallel.

The influence lines which connect the nuclei of stripe cardioids are contacted by walking around the former between the rings and following them outwards. They are usually very irregular—compare Mr. Underwood's Fig. 1, J, page 162, *B.S.D.J.* VIII, 62, with Fig. 1, *B.S.D.J.* VII, 53, page 17. The satellites are also connected to the central nucleus of their particular cardioid and to each other, but not to any one of the same stripe, so that

pattern M can also appear during the partial formation of a cardioid. Another common product of field instability is pattern H, which shews what is probably a four-ringed cardioid with four satellites plus four minor ones only, and no rings. In other words, some of these interesting figures, for instance, G and I—the same spiral forms D and F are included in pattern H—may be secondary effects, and they do not exist in their own right. Nor, because of the homogeneity and characteristic trend of each class of stripe so far mentioned can any of their components be attributed to either water or fissuring. Mr. Budgett's observations on page 6 of *Local Variations in a Penetrating Radiation and their Connection with Water Divining*—"The whole surface of the earth appears to be divided up into areas over which certain conditions prevail, these areas being the cross-sections of shells or columns which extend upwards and downwards to great distances," is very appropriate; and it may be that the reactions said to be felt from an aeroplane are due not to the crossing of underground streams, but to stripes, the widest of which so far measured is approximately 150m. in width and carries 15-ringed cardioids of nearly 40m. radius.

The generation of a grid and cardioid is prevented by earthing the lead of a Busby solenoid, *B.S.D.J.* 47, page 161, of say 12in. diameter and with 19 turns to the centre of its nucleus. The effect quickly spreads to several other cardioids on the same stripe parallel, but the latter is unaffected unless the cardioid is situated on the central, i.e., fifth parallel of that particular stripe. In this case, all the stripe parallels and cardioids disappear over an, as yet, undetermined distance. So that the strategic use of a solenoid on each class of stripe, as also the connecting of different types with galvanised iron wire, will clear all these radiations from a house site, orchard, pasturage, &c. However, it may be inadvisable to carry the process to an extreme, since one or other type of cardioid may be required for health and growth. This point will be extended later, in view of the possibility of treating sick people by siting the bed on and off certain cardioids. Nor does it seem reasonable to plant trees and vegetables indiscriminately without considering the possibility that they might do better if they and their attendant micro-organisms were given the cardioid according to requirements. In any case, it seems a pity that this type of solenoid has not received general acceptance by dowsers, since it affords a more effective means of eliminating harmful radiations than lead sheets, &c., to say nothing of those which interpose during the examination of an underground stream. They should be hung from a convenient tree or fence, and not earthed through a depthing rod or other iron post, if complications are to be avoided.

(*To be continued*)

CHARGE AND DISCHARGE

The following note by the late Major R. Creyke should be of interest to most dowsers :—

Use of the rod charges up the dowser and makes him feel ill ; this seems to be more marked if the dowser uses a metal rod. This charge slowly leaks away, particularly during sleep, but a great many dowsers can only work for a short time, with considerable intervals between.

However, the charge can be quite easily got rid of, and after discharging the operator feels perfectly normal again. Personally, I have been dowsing for certainly two hours a day, almost daily, for some six months. As soon as I get rid of the charge, I feel perfectly normal again, but quite tired, and sleep well.

Friar Benoit Padey, who wrote much the best book on dowsing, a monumental work in three volumes, of 612, 242, and 44 pages, 3rd edition 1930, gives the following instructions for discharging :— (rough translation)—" This accumulation of influences is tiring, and can even destroy the sensibility ; also, it is a good thing to discharge. For that, it is only necessary for the dowser to take his rod or his pendulum and to have the intention of allowing the accumulated influences to escape. The rod or pendulum spontaneously begins to move and reproduce, without interruption, all the movements they have made during the preceding research, beginning with the last. The operator receives from this discharge a sensation of well-being and repose. The length of the discharge depends on the number of lifts and dips during the research. The rod will make as many turns as there are periods, in spite of the firmness with which the rod may be held, or the weight of the pendulum. The force of the fluid during discharge has turned a weight of 35 kilos (77lb.) suspended by a cord from the hand. If the operator does not discharge, he remains impregnated with the influences for several days. After this time the influences evaporate by themselves without his noticing it. But during this time he suffers more or less, according to the amount of charge accumulated during the work done. After a wait of several hours, the discharge becomes longer ; it multiplies four times, ten times, and more ; when the operator is in this highly charged state he should sleep."

My own method is different. I sit in a chair quite limp, both feet flat on the ground, holding a pendulum in either (or both) hands, with the forearm supported on the arm of the chair. As a pendulum I use a wooden ball, some two inches in diameter, with a hole bored through it. There is a string through the hole, secured at the bottom by a knot, with another knot some four inches from the wood which I hold it by.

The pendulum immediately begins to gyrate of its own accord, and while it is doing so I feel the charge prickling out of me; perhaps one feels this prickling most strongly in one's calves and feet, but I get a good deal all over, and particularly in the legs; but both feet must be kept flat on the ground.

After a number of swings, depending on the amount of the charge (I have had over 2,000 turns), the gyration gets gradually feebler, and finally the ball swings straight. It then slowly starts to gyrate in the opposite direction, and goes through a similar performance.

I find that the second swing is stronger than the first, and more prickly. The number of turns in each direction is about the same, with, as a rule, slightly more in the second. At the end of the second series the ball swings straight, and then to and fro across the operator (right and left). This is the end, and though one may be tired, one feels quite cool and well—normal, in fact.

With me the first series is positive, the second negative, i.e., the first is the same as over water, which is anti-clockwise in my right hand and clockwise in my left. I also find that if I have a pendulum in each hand, the number of turns necessary is halved; of course, they turn opposite ways. The maximum I have ever had was just over 5,000; this was on a particularly big charge, and before the discharge I felt just as if I was starting with influenza.

The rod acts just as well in a car (but with a lag depending on speed) and, I hear, at 1,000ft. in an aeroplane. I discovered some months ago that after a long drive in a car I was considerably charged up. This is only natural, as one's nervous system is equally affected by the water, drains, cables, &c., one passes over, whether one is holding a rod or not. After all, the rod is simply the needle of the voltmeter showing the answer; the operating mechanism is the dowser's body.

However, I find that I do not get a big charge over water work in the open. It is the indoor work which produces the big charge with me.

I find that provided one gets rid of the charge after finishing the work there are no ill effects whatever. I sleep very soundly, and feel extremely well, in spite of the amount of work I do. In fact, this winter I have not even had a cold.

Apparently every dowser is different, and, beyond quoting the friar, I can only say how it works with me. I am polarized all over my body, which I believe is unusual, and I work with rather supple whalebone rods.

PART TWO

NERVE REFLEXES AND THE DOWSING REACTION

By G. BELYAVIN, M.B., B.S.

What is written here is based largely on my lecture given to the Society on February 16th under the above title. My approach to the subject, and, to some extent, the factual content have been amplified, modified perhaps in some places, and, I trust, mellowed by second thoughts.

My main purpose is to see whether the dowsing reaction can be explained in terms of the nerve reflex. To discuss this subject at all, it is clearly necessary to make certain *a priori* assumptions about dowsing. First, that it is a fact; whether it exists or not as a natural phenomenon does not enter into our "terms of reference," and I am not going to make any further comments thereupon, except to make clear that I have still an entirely open mind. I am writing neither as a complete sceptic nor as a confirmed disciple, more as a divining agnostic.

Secondly, we must regard the divining rod or pendulum, whatever modifications of size or shape it may adopt, as purely an indicator and nothing more. The human being bearing the indicator is the mechanism which actuates the divining rod on receipt of certain specific stimuli—unless this is granted, there are no logical grounds whatever for considering nerve reflexes as having any bearing on dowsing at all.

With these provisos, we can commence examining our subject.

I think it is important to describe something of the anatomy and physiology of nerve reflexes before proceeding any further.

Whenever it is necessary to describe living tissue from any angle whatsoever, the starting point is inevitably the cell. Cells are the building bricks of which living things are made. This is one of the fundamental concepts of biology, and although life, its processes and its organic manifestations had been studied by mankind for at least three hundred years before the enunciation of this discovery, modern biological thought stems from that point in the history of natural philosophy. It is as well, therefore, that we should also start with the cell. A cell is virtually an extremely small blob of jelly-like substance termed protoplasm.

This is a simple statement about an object which is so complex that its mysteries have not even now begun to be solved. Living things exist which are virtually one single cell on its own, and bacteria form an example of this group. Human beings are composed of many cells; the exact number cannot be estimated with any accuracy, but it is perhaps of the order of 10^{10}. This large aggregate of cells which constitute man can be regarded as a social community, and just as in a human society various tasks or trades are performed by certain specific groups of people, so groups of cells are set aside in the human body to perform certain functions. Communication within the body, and contact with the external environment, is performed by the nervous system, which is therefore a specialised group of cells, the unit member being a nerve cell. Human cells vary considerably in size, according to the functions they perform, but a diameter of 40 microns is a neat round figure which gives a reasonable approximation of their average size. The range of variation may be conceived, however, from the fact that the red blood corpuscle (probably the smallest cell in the body) measures about 7 microns in diameter, and the human egg, which may be fairly taken as the largest human cell, measures about 120 microns in diameter, a micron being one twenty-five-thousandth part of an inch. There are certain reasons why the measurements of nerve cells cannot be defined, but human nerve cells may be regarded as being average sized, which is a comfortable, non-committal sort of size.

The nervous system as a whole consists of three main anatomical groups, the cerebro-spinal system, consisting of the brain and spinal cord, the peripheral nervous system (the nerves proper) and the autonomic nervous system (which does not directly concern us). Throughout these systems are to be found nerve cells, organised into certain groups. Before elaborating this any further, we should perhaps cast a quick glance at the nerve cell itself. Unfortunately, there is more than one kind of nerve cell in the human nervous system, as we might well suspect, for the manifestations of living matter are never simple and straightforward. However, we will restrict ourselves to examining one fairly common type, which will serve our purpose well enough. If you can imagine a roughly triangular piece of chewing gum, of which the apex has been pulled out into an immensely long thread, perhaps several feet long, and which carries on the angles at its base shorter, much-branched threads measuring, say, a few inches long, you will have pictured to yourself the appearance of a nerve cell. The real nerve cell, of course, is infinitely smaller than any piece of chewing gum ever was, and our simile is in any event but a poor shabby skeleton of a nerve cell, for to give a complete description we have to add a multitude of frills and

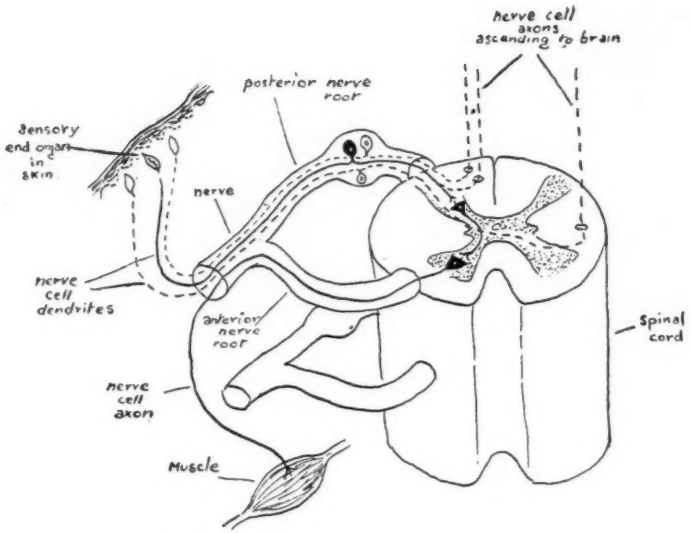
fripperies to represent other structures normally present, such as the myelim sheath, the neurilemmal cells of Schwann, the nucleus, the Nissl's granules, and much else. These, however, are of no importance whatever to our present discussion, and we will remain content with our skeleton.

The short branching filaments are technically termed "dendrites' and the very long thread is the " axon." When two nerve cells communicate, it is usual to find that the extreme tip of the axon belonging to one cell forms a number of small branches which intertwine with the dendrites of the other. Although the intertwining is close, no actual communication or continuity of protoplasm exists between the two cells as far as is known. This gap which apparently exists between two communicating nerve cells is known as a synapse, and two bits of information are known about the behaviour of the synapse, which have so far remained unchallenged by experimental physiologists—(*a*) the nerve impulses cross the synapse in the form of a chemical substance, acetyl choline, which is secreted at the synapse and destroyed in the winking of an eye by certain enzymes ; and (*b*) the stimulus appears to pass in one direction only, from the axon of one cell to the dendrites of the other. The synapse means one-way traffic as far as nerve impulses are concerned.

I think I have said enough about nerve cells now to give you some idea of their approximate appearance, and to give you a rather nebulous suspicion of their actual extreme complexity.

The point has now been reached when we can examine the question of nerve reflexes. What is meant by " reflex " action and " nerve reflexes " ? Everyday experience makes us aware of the fact that there are certain actions which we carry out instantaneously, " without thinking." No normal person who picks up something excessively hot will go on holding it. The usual reaction is to drop it as soon as it is grasped. There are few ordinarily constituted human beings who will lower themselves onto a drawing pin and remain seated in comfortable oblivion of this fact. A threatened blow in the face will cause a closing of the eyes ; if we see someone sucking a lemon our mouths water, and when the doctor taps just below the knee with a small rubber-lined hammer the leg kicks entirely without volition.

All these actions are involuntary, and many of them occur with great speed—" as quick as thought " or " in the twinkling of an eye," and they are fair examples of what may be termed reflex actions or " nerve reflexes." All are initiated, be it noted, by the receipt of some " stimulus " of a sensory nature, in response to which positive action (" motor " or " secreto-motor ") takes



The Reflex arc and its connections.

place. If I may draw another simile, the phenomenon resembles an echo, albeit a mischievous and highly improbable echo, which responds instantly to our shout, not by a somewhat garbled and metallic answer, but by a sudden douche of cold water or a startling blow on the head.

The information we already possess on nerve cells enables us to examine the mechanism which produces these reflexes, the reflex arc. Such an examination commences inevitably in a "sensory end-organ." Every sensation which we experience is perceived in the first place by a particular cellular structure, of which many thousands are distributed over the surface and inside of the human body. They vary in their construction according to the sensation they are responsive to. There are end-organs for the perception of pressure, heat and cold, pain, taste, and, as an example of a particularly complex collection of sensory end-organs, we mention the eye, tuned as it is to the reception of light energy. Each individual end-organ is connected to the dendrite of a nerve cell, which usually is situated a long way away, in the vicinity of the spinal cord. The axon of this cell passes into the cord, where it may do one of two things, either travel up the spinal cord towards the brain centres, on the same or opposite side of the spinal cord, or it may make immediate

connections through the intermediancy of another nerve cell with yet a third cell whose axon terminates eventually in a group of muscle fibres, a gland, or some other structure. If we like to consider ourselves as a nerve impulse, commencing in a sensory end-organ, and elicited, let us say, by the prick of a pin, we have two main pathways which we may follow. We may travel up the spinal cord to the " head office " (the brain), or we may short-circuit through the cord, and emerge breathless, but triumphant, in those muscle groups which are necessary for dealing with the immediate situation without further references to " higher levels." This latter pathway constitutes the reflex arc. The complete mechanism is illustrated somewhat crudely in the accompanying figure—which is also intended to demonstrate that all ingoing messages to the cord are collected together in one bundle, and all outgoing messages in another bundle, the two bundles fusing some distance from the cord to form a nerve. Also we may note that the first nerve cell (directly connected to the end-organ) is usually situated in a " substation," or ganglion placed on the posterior bundle of nerve fibres. These are details which are largely irrelevant to our understanding of the reflex arc, and there are many others which I have completely left out. One fact, however, is important. You may perhaps understand from this that a nerve is not a channel of communication analogous to a single electric wire, but is more like a modern G.P.O. multi-cord cable, carrying nerve fibres, amounting to hundreds, if not thousands, in number, bearing both ingoing and outgoing messages. Furthermore, a nerve proper does not contain nerve cells, but only their axon or dendrite processes. It is also interesting to note here the contrast in rate of travel between a nerve impulse passing along a nerve at 80-100 metres per second and an electric current, which flows along a wire with the velocity of light, i.e., $2{\cdot}98 \times 10^{10}$ cms./sec., or approximately *three hundred million* metres per second.

All that I have said hitherto has been in the nature of an extensive preamble. We are now in a position to commence the main part of the discussion and see whether the phenomenon of the dowsing reaction can be explained in terms of what we know of the physiology of the reflex arc. Examining the problem on general grounds, we meet objections to such an hypothesis at the outset. From what we know of the nature of reflex actions, the sudden movements of the divining rod or hazel twig could conceivably be ascribed to sudden, reflex-initiated muscle contractions. I cannot see, however, that the rhythmic movements of the dowsing pendulum can be explained in this way. In my lecture, I pointed out that the majority of reflex phenomena have a distinct biological advantage to the individual, whereas the dowsing reaction, as I saw it, had no such advantage.

Second thoughts, however, force me to retract this argument, as the ability to detect water by such means has obvious biological advantages. It would, however, have to be a reflex mechanism which had remained latent for a considerable portion of man's early development and at an intellectual level when, for example, the logical connection between the twitching of a hazel twig and the presence of hidden water would be missed, this reflex mechanism would indeed have little biological advantage. The survival and development of such a reflex would therefore be improbable. If we assume that the stimulus to this reflex is some form of radiation energy hitherto unknown, it is unlikely that it would act by stimulation of the nerves themselves. Nerve fibres (nerve cell axons) respond impartially to many chemical and physical stimuli, and, as we have seen, all the nerves in the body carry fibres with varying destinations.

Stimulation of the nerves of the body by such radiation directly would be too diffuse to activate selectively any specific reflex arc. Selectivity of response to sensory stimulation is produced by the linking of the nerve cell to a sensory end-organ capable of reacting to one type of sensation. Specific end-organs would therefore be necessary to activate the dowsing reflex arc, responding only to water-radiations. Such end-organs, anatomically speaking, do not exist, as far as we know.

These are a few simple reasons why the dowsing reaction cannot be explained on the basis of known nervous reflex arc physiology. That the dowsing reaction cannot be explained by such a limited hypothesis does not, of course, mean that the dowsing reaction does not exist, a conclusion which often appears tempting to some people, but which is logically quite unwarrantable.

I am afraid that the main body of this discussion is shorter than the preamble, and has led to a somewhat unsatisfactory and negative conclusion. Naturally, having criticised the reflex hypothesis, one would like to avoid purely destructive criticism and offer something positive as well. To develop an alternative hypothesis, however, would be pure speculation on my part, in view of the fact that I possess no experimental data on the subject. Pure speculation in any branch of natural philosophy, when undiluted by any vehicle of observed fact, is always dangerous, and frequently misleading. I hesitate, therefore, to propound any alternative theory, and suggest (purely as a suggestion) that the phenomena of extra-sensory perception may possibly be akin to the manifestations of dowsing. I would add, however, that both phenomena still await rigorous experimental confirmation.

NOTES AND NEWS

An account of a remarkable case of successful dowsing in Kenya has been sent us by Lieut.-Colonel Hennessey. He had been asked to find a water supply on the farm of a Mr. Rutter, situated in rocky hills at an altitude of about 8,400 feet. With some difficulty he located a suitable site, and a borehole was started. The first bore was abandoned at about 400 feet because the hole was crooked. A second borehole was also a failure because the drill broke in pieces. The contractor then started a third borehole. At this point Mr. Rutter, who had been in England, returned to the farm and was dismayed to find that no water supply had been provided. The rock in this third borehole was geologically most unpromising, but Colonel Hennessey having checked his original findings, Mr. Rutter insisted on the bore being continued. His faith was amply justified, as a good supply of water was found within a few feet of the depth predicted.

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An article in the *Natal Daily News* of January 2nd describes an interview with Mr. H. S. M. Ham, retired Union Registrar of Deeds, now living at Bloemspruit, near Bloemfontein, who claims to have located a lake of oil reaching from the latter place to Zastron.

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The Cape Argus of January 22nd mentions that Pieter van Jaarsveld, "The boy with the X-ray eyes," had arrived in Cape Town to search for water at Durbanville and Stellenbosch. He claims to have "seen" oil at two places in the Union. The issue of February 17th reported that a bore at Durbanville was yielding 2,800 gallons per hour.

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There was an advertisement by the Offaly County Council in the *Irish Times* of January 26th inviting applications from water diviners in connection with the scheme for the provision of approximately sixteen public pumps.

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The *Daily Graphic* of February 9th contained an account of an interview with a doctor, a fully qualified medical man, who has been using radiesthetic methods for many years.

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An illustration in the *Halifax Courier* of February 12th shows Mr. Jack Quain (B.S.D.) giving a demonstration of divining to an audience of boys at Sowerby Bridge Modern School.

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A paragraph in the *Sunday Times* of February 13th recalled the fact that the late Lord Woodbridge was a dowser.

In *La Libre Belgique* of February 19th there was an advertisement from an industrial firm for a student of Radiesthesia who wanted to specialise.

* * * *

The *Somerset County Gazette* of February 26th contained an article about Mr. Alfred S. Long, a water diviner, of Taunton, who is frequently employed in finding underground water supplies for farmers and others. He claims that his forecasts are 99 per cent. successful. The same paper, in its issue of March 5th, reported an interview with another Taunton diviner, Mr. J. Coles.

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The *Brecon Express* of March 17th reported a meeting of the Knighton Rural Council, at which it was agreed that a water-diviner should be employed to locate an additional water supply.

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In *Le Peuple* of March 28th there is an account of the discovery of the body of a murdered man, M. Claude Guenneau, in La Bièvre, a tributary of the Seine. The police having failed to trace the missing man, appealed to a radiesthetist, M. Calte, who, having dowsed over a plan of Paris with a pendulum, indicated the spot where the body, with the skull beaten in, was eventually found.

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According to the *Yorkshire Post* of March 30th, a well-known Yorkshire dowser assisted in a search for underground passages at Knaresborough Castle, carried out under the direction of an Excavation Working Committee, the organiser of which is Mr. Stephen C. Barber, the well-known archæologist.

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Further to the note on page 242 of the last *Journal*, Mr. C. R. Hutchinson, Private Secretary to Lord Baldwin, has written to say that the day before Mr. Claude Bell left Antigua to return to his home in Jamaica the first well dug had yielded water.

LETTERS TO THE EDITOR

The Editor, Journal of the British Society of Dowsers.

Dear Sir, *April 29th*, 1949.

After reading Mr. Maby's rejoinder to my essay in your *Journal* No. 63, of March, I would ask permission to make a short reply.

I am very sorry that Mr. Maby has taken such a controversial attitude to my methods of dowsing. However, I am afraid that any machine invented by Mr. Maby, which may be able to reproduce some of the physical aspects of dowsing, will not prove to me that dowsing is not a mixed mental and physical science.

I disagree with Mr. Maby that employers are always seeking to find out how dowsing is done. My experience, and it is

considerable and varied, has been that employers go by results. If you can give the correct answer to location, depth, volume, &c., of water and minerals, then the employer cares little of your methods. As long as he can rely on your findings, nothing else matters. I contend that there are a number of dowsers who work on the lines I have advocated, and who can give the right answers, just as there are dowsers who, working on Mr. Maby's lines, can do likewise.

Finally, I fail to see why there should be such controversy. In my opinion, results are all that matter. If Mr. Maby would only realise that we are all dowsers striving to get the correct answers to our work, and by our results—not methods—gain recognition, I think he would not be so anxious to tear in pieces anyone whose opinions differ from his. I am certain there can, and always will, be successful dowsers who follow either method of working, or, better still, strike out on new lines of their own.

Yours, &c.,

H. I. HALLIDAY

Westways,
Oxford Road,
Banbury.

April 21st, 1949.

The Editor, Radio Perception.

Dear Sir,

Mr. Underwood's proposition that the winding nature of our old lanes is due to their being aligned between lines of influence is interesting; but can it be fairly taken to be the origin of them all?

One can imagine that ancient pilgrims or worshippers en route to sacred circles might adhere to special paths between such tracks; but would not very many other footways have originated from commercial, social or hunting causes? It seems safe to assume that the latter would take the most direct route, only swerving to avoid natural obstacles, and human and ovine natures having much in common, travellers would continue to use the original track long after the obstructions had disappeared, trees dying, marshy ground drying out, and so on. Otherwise we are forced to the conclusion that our old lanes and tracks led only to sacred circles, or suchlike structures, thus implying, if Mr. Underwood will pardon my apparent flippancy, people in those times went only to church, and nowhere else.

Yours truly,

R. HUNTRISS

Coombebury, Grange Road,
Caterham, Surrey.

Dear Colonel Bell, 29*th April*, 1949.

I entirely agree with your views on the subject of dowsing terminology, as expressed at the last A.G.M.

The reputation of dowsing, the advancement of the craft, and the progress of research are suffering incalculable damage through the misuse of words.

It is evident that contributors to this Journal possess varying degrees of acquaintance with scientific terminology, and wish to know more of such terms so that they may have a larger vocabulary in which to express themselves. Unfortunately, many are so eager to use these terms that they overlook the necessity of finding out exactly what they mean, and of maintaining the same meaning in their own writings. They seem to think that by replacing plain English by a few scientific terms, torn from their original context, they make their meaning more lucid and acceptable as scientific statement. I submit that this is not generally so.

If a scientist reads of, say, " dielectric radiation," he is at least entitled to a definition of the term, so that he may know what meaning the writer intends to convey. He would consider that sentences such as " This beam follows a long circle or heavyside deflection pathway according to the distance between the bodies," could have been put more clearly in simpler terms. On reading that " it is change of current that gives a magnetic field," he at once detects a confusion of ideas. But when he is confronted by phrases such as " a force of extremely high velocity " or " a frequency of infinite speed," he is forced to the conclusion that this is another language, and retires to his own water-tight compartment, wondering perhaps whether dowsers really understand each other.

One of the most important functions of this Journal is surely that of presenting to its readers the manifestations of the dowsing phenomenon in the form of methodically collected facts. These facts, plainly stated as experimental results, together with all the known relevant conditions, are necessary and sufficient material for further progress. They may be analysed ; theories formed and tested ; technique improved, and the fund of knowledge increased.

Unhappily, many such statements (with some exceptions for which posterity will be thankful) are lost in a welter of flowery phrases and misleading generalisations which do far more to kill progress than the most contemptuous of sceptics, especially when repeated carelessly by those of lesser understanding.

Many Members, I feel sure, recognise this lamentable situation, and I hope they will do all they can to raise the standard of scientific reporting and discussion in the Journal.

Yours sincerely,

R. V. Harvey

REVIEWS

REVUE INTERNATIONALE DE RADIESTHÉSIE, No. 11

The first article under the general heading " Études Générales —Doctrine et Technique " is :

Comment on devient Radiesthésiste, by M. le Gall. This is a very interesting article. The author describes how, as long ago as 1930, he became convinced of the reality of *radiesthésie*. However, in 1940, when a prisoner of war, he attended a lecture by an expert, but was disgusted by the ignorance of physics which the lecturer displayed. He then undertook to give a lecture himself, in which he treated the subject on genuine scientific lines as an electro-magnetic phenomenon. As a result, he received several requests to locate various individuals. He found he was able to do this successfully from a study of maps and photographs, and came to the conclusion that he was making use of a natural power of divination. In exercising this faculty, which is in no way influenced by physical considerations, certain elementary principles have to be observed, of which the most important is the precise envisagement of the objective. He considers that the gift is common to all, but that every operator is limited by his outlook and training.

Action des Formes en Biologie et en Météorologie, by Emile Christophe. A continuation of his study in No. 7 of the effects of Shape in connection with molecules in organic matter. He says " it is invisible electric energy which is required to explain the mystery of the action of Shape."

Nature de la Téléradiesthésie, by Hubert-Louël. He discusses the nature of intuition, and analyses the process by which paranormal cognition is attained. He classes teleradiesthesia as a form of metapsychic knowledge.

Le Choix des Remèdes, by C. Voillaume. This is a continuation of the article in the previous *Revue*. In it the author describes the use of a circular dial with a pointer pivoted at the centre. The " sample " of the disease is placed in a receptacle at the centre and the remedy at the end of the pointer. He shows that results obtained by this method agree with the method of the " rule " described in No. 10.

In the section *Discussions d'Idées* there are two communications on *La Momification*. Jean Martial quotes an extraordinary experience described by Dr. Roger Weissenbach in *Rivista Italiana di Radiestesia*. He found a dead mole in the garden in an advanced stage of putrefaction, but arrested further decay by placing a pyramid-shaped cover over it.

A.H.B.

RADIESTHÉSIE POUR TOUS

February, 1949

One of the attractions is an article entitled *Des Sourciers, S. V.P.*, which I would translate as *Dowsers Come Forward, Please !* It is a stirring appeal, subject of a paper read recently in Brussels by R. P. Desbuquoit, who is troubled by the immense injury to health caused by malific radiations from the subsoil. These are caused by ionization in the veins in certain argillaceous strata of the water flowing therein charged with radio-active materials. The break-up of these releases dangerous ions which rise in the ground vertically and work havoc in all living organisms through which they pass, upsetting metabolism, slowing healing of wounds, setting up nerve troubles, and so forth. In fact, than the subterranean currents, he declares, there is no greater menace to human health. He quotes a letter from a Jesuit dean of the College of Science and Philosophy of Namur expressing the opinion that " the Public should be warned that three-quarters of sicknesses arise from it ! "

As the author points out, the doctors in this respect are powerless, and when the trouble is recognized their ministrations are often too late. It is to the dowser one must go to diagnose when the trouble arises. In fact, he declares, every doctor should make himself a dowser.

A number of interesting cases are mentioned, one of a school where seven children suffered from the distressing weakness, enuresis, which the doctors could not remedy. But the priest, who was a dowser, spotted the malefic radiation, and cured the trouble simply by moving the beds.

From the pen of Lt.-Col L. F. Moreau appears an article entitled " About the Image, an experimental realization of the phenomenon." This seems to refer to what some may recognise better as *Rémanence*—where our rod or pendulum indicates position of an object sought for that in effect is not there at all, but has been there previously. Its radio-active image left behind after its removal has deceived us. The article tells how to study the emanations concerned and their potentials by working with a pendulum over a calibrated length of copper wire.

March, 1949.

p. 65. Explanation of use of " resonant " cavities and tubular conductors in extreme high-frequency radio of only a few centimetres wavelength. This in connection with apparatus termed the Autodyne.

p. 68. Report of Conference on ethical questions relating to doctors, and recognition of healers.

p. 93. Perfumes and smells, we are told by Madame Dricot, are matters of vibratory rhythm, and some declare are associated with ultra-short waves. Therefore, it is argued, they must exercise influence over the cellular energy and electro-physiology of the human being. Perfumes can stimulate him or depress him; and even kill him, e.g., chloroform. So Madame tells the ladies that their perfumes must harmonize with their personalities, and reveals that by radiesthesia the correct choice may be made.

p. 76. A talk on colours as witnesses. For example: For drinking-water, a very light violet; but for non-potable water, dark blue.

Spread, you are advised, upon a table an assortment of colours, and between them and yourself an object. Now hold the pendule suspended above the object, and there should be a swing in the direction of the colour most in accord with the object. The colour will be a suitable witness of the object. Another plan, that of mental orientation, is where a lady going shopping for clothes or furnishings holds the pendule over the sample, coloured materials for choice, and deliberately asks the pendule to do the selecting, i.e., find the best witness.

p. 79. For advanced students there is an article detailing experiments to be performed with the help of a 4v. torch battery, a magnetic compass, a small wooden disc and, of course, the pendule.

p. 81. Metrocapt, a radiesthetic wavemeter, is a geometrical affair comprising a disc bearing an outer circle of 32 cm. diameter, divided circumferentially into 100 equal divisions indicated by *Roman* numbers I to C (1-100). Within, and with same centre, is another of 27 cm. calibrated 1 to 200, but in *ordinary* figures. Within this, again, is a hexogram, termed a "Solomon's seal," the apical angles of which, reading clockwise, are numbered 0, 600, 200, 1,000, 400, 800. Within the hexagram is a much smaller one, and outside the big circle are two scales, one calibrated in days, hours and minutes. Witnesses are used, and measurements obtainable remind one of those associated with Bovis, Turenne, Stevelink and others.

p. 94. The Ondobiometer is announced as a new apparatus for measuring human radiations and designed especially for medical use, but no details are given as to construction, appearance or methods of operation.

This opens with an illustrated account of a dowsing demonstration by Victor Mertens in course of a search for water for the town of Perwez, in Brabant.

p. 103. Radiation from the Earth's Magnetic Axis is the most fundamental of all radiations, and there are 64,800 altogether, declares B. A. Paulet in a talk on healing, in the course of which I read that a plate of sage and a stomach each emitted a radiation around 75 degrees of the geographical North. Doubtless these two were suited.

p. 106. Further particulars on the use of the Metrocapt as an appliance for diagnosis and healing by using witnesses.

p. 107. A lesson in mental concentration.

p. 110. Everything radiates. An article for the beginner.

p. 112. For the advanced student. How you can reveal the existence of 36 Forces. Achieved by drawing and colouring a certain design as described, and then operating in it with a pendulum. Among the 36 forces are Ultrasonics, Infra-red, Disintegration, Healing, Heat, Nuclear Energy, and Gravitation.

p. 116. The ideas of Dr. Jarricot on *Radiesthésie*. The Doctor has just written a book entitled *Pendule et Médicine*, in which he is very uncomplimentary to medical radiesthesia by reason of the failure of exponents of radiesthesia in certain tests. The reviewer of the book tells us the tests, one being distinguishing, by means of a pendulum, the north pole of a magnet from the south one. The number of participants are not mentioned, but the results were: at first attempt 43.7 per cent. failures, and at second 81.8 per cent. failures. It should be emphasised that the tests took place so long ago as 1935, since when radiesthesia has made notable advance.

p. 120. Confusion between Electrical and Magnetic radiations, explain Mmes Oury and Gravatte in an interesting article, often cause mistakes, especially in archæological researches for objects buried in clay soils. The two radiations come from different sources, and a pendule suitable for one may not do for the other. One coloured red will respond to magnetic radiation, whereas to the Electrical blue will respond.

A magnetic current, they claim, is detectable by pendule over a space of 20 cm. above or below an object sought, and the radiations can be positive or negative. Some bodies, like helium and thorium, emit electrical radiations only. Theoretically, a buried object sends out electrical radiations vertically, provided they are not diverted, as can happen from, for example, interference by magnetic radiation.

W.E.H.H.

BOOKS AND APPLIANCES

The Editor will be glad to receive old copies of B.S.D. Journals and of English books on dowsing.

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Anyone having a copy of *The Physics of the Divining Rod* to dispose of is requested to communicate with the Editor.

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Mumetal rods for depthing can be obtained from the Telegraph Construction and Maintenance Co. Ltd., Telcon Works, Greenwich, London, S.E.10, for £3 17s. 6d.; delivery in 10 to 12 weeks.

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Various dowsing appliances can be obtained from Mr. Noel Macbeth, Moulsham Millhouse, Chelmsford, Essex, to whom application should be made for detailed information.

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Messrs. Devine & Co., St. Stephen's Road, Old Ford, London, E.C.3, supply whalebone strips 12in. long of the following sections at 5/- per pair:

Flat	7 mm. x 2 mm. or 3 mm.
Circular	3 mm. or 4 mm. in diameter
Square	3 mm. or 4 mm.

Also spherical whale ivory pendulums at 10s. each.

Prices of other sizes of rods and pendulums are given on request.

All prices post free in U.K.

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The following can be obtained from Mr. Guy Underwood, Belcombe House, Bradford-on-Avon, Wilts:—

OASIS "LINK" Divining Rod (in case)	8/-
ESSAYS on Dowsing	5/-
ESSAYS on Archaeology and Dowsing	6/-

Nett prices, cash with order and post free. Proceeds are applied to dowsing research.

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Copies of *Dowsing*, by Pierre Béasse, can be purchased at "Le Progrès Scientifique," 37, Rue Rossini, Nice (A.M.), France. This book, which is an English translation of the French original, contains 215 pages and 92 illustrations; price 12/-.

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La Revue Internationale de Radiesthésie, which contains contributions from many countries on all aspects of Radiesthesia and is issued every two months, can be obtained at 45 Boulevard de la Cambre, Brussels; subscription 250 Belgian francs per annum.

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Radiesthésie pour Tous can be bought at The News Stores, 10 Coptic Street, British Museum, London, W.C.1, at 2s. per copy.

Twelve consecutive copies can be ordered through Mr. Noel Macbeth, Moulsham Mill House, Chelmsford, Essex, for 18s.

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Members requiring any of the books or appliances mentioned above should apply direct to the address given, and not to the Assistant Secretary.

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